GE Healthcare

LOGIQ e/LOGIQ e Vet/LOGIQ i/ Vivid e

Basic Service Manual

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Important Precautions

THIS SERVICE MANUAL IS AVAILABLE IN ENGLISH ONLY.

- **IF A CUSTOMER'S SERVICE PROVIDER REQUIRES A LANGUAGE OTHER THAN ENGLISH, IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE TRANSLATION SERVICES.**

WARNING (EN)

- **DO NOT ATTEMPT TO SERVICE THE EQUIPMENT UNLESS THIS SERVICE MANUAL HAS BEEN CONSULTED AND IS UNDERSTOOD.**
- **FAILURE TO HEED THIS WARNING MAY RESULT IN INJURY TO THE SERVICE PROVIDER, OPERATOR OR PATIENT FROM ELECTRIC SHOCK, MECHANICAL OR OTHER HAZARDS.**

CE MANUEL DE MAINTENANCE N'EST DISPONIBLE QU'EN ANGLAIS.

- **SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.**

AVERTISSEMENT (FR)

- **NE PAS TENTER D'INTERVENTION SUR LES éQUIPEMENTS TANT QUE LE MANUEL SERVICE N'A PAS éTé CONSULTé ET COMPRIS.**
- **LE NON-RESPECT DE CET AVERTISSEMENT PEUT ENTRAîNER CHEZ LE TECHNICIEN, L'OPéRATEUR OU LE PATIENT DES BLESSURES DUES à DES DANGERS éLECTRIQUES, MéCANIQUES OU AUTRES.**

DIESES KUNDENDIENST-HANDBUCH EXISTIERT NUR IN ENGLISCHER SPRACHE.

- **FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENö TIGT, IST ES AUFGABE DES KUNDEN FüR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.**

WARNUNG (DE)

- **VERSUCHEN SIE NICHT, DAS GERäT ZU REPARIEREN, BEVOR DIESES KUNDENDIENST-HANDBUCH NICHT ZU RATE GEZOGEN UND VERSTANDEN WURDE.**
- **WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH ELEKTRISCHE SCHLäGE, MECHANISCHE ODER SONSTIGE GEFAHREN KOMMEN.**

AVISO (ES)

ESTE MANUAL DE SERVICIO SÓLO EXISTE EN INGLÉS.

- **SI ALGÚN PROVEEDOR DE SERVICIOS AJENO A GEHC SOLICITA UN IDIOMA QUE NO SEA EL INGLÉS, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCIÓN.**
- **NO SE DEBERÁ DAR SERVICIO TÉCNICO AL EQUIPO, SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL DE SERVICIO.**
- **LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL OPERADOR O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR CAUSAS ELÉCTRICAS, MECÁNICAS O DE OTRA NATURALEZA.**

ATENÇÃO (PT-Br)

ESTE MANUAL DE ASSISTÊNCIA TÉCNICA SÓ SE ENCONTRA DISPONÍVEL EM INGLÊS.

- **SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEHC, SOLICITAR ESTES MANUAIS NOUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.**
- **NÃO TENTE REPARAR O EQUIPAMENTO SEM TER CONSULTADO E COMPREENDIDO ESTE MANUAL DE ASSISTÊNCIA TÉCNICA.**
- **O NÃO CUMPRIMENTO DESTE AVISO PODE POR EM PERIGO A SEGURANÇA DO TÉCNICO, OPERADOR OU PACIENTE DEVIDO A' CHOQUES ELÉTRICOS, MECÂNICOS OU OUTROS.**

AVISO (PT-pt)

ESTE MANUAL DE ASSISTÊNCIA ESTÁ DISPONÍVEL APENAS EM INGLÊS.

- **SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEHC, SOLICITAR ESTES MANUAIS NOUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.**
- **NÃO TENTE EFECTUAR REPARAÇÕES NO EQUIPAMENTO SEM TER CONSULTADO E COMPREENDIDO PREVIAMENTE ESTE MANUAL.**
- **A INOBSERVÂNCIA DESTE AVISO PODE RESULTAR EM FERIMENTOS NO TÉCNICO DE ASSISTÊNCIA, OPERADOR OU PACIENTE EM CONSEQUÊNCIA DE CHOQUE ELÉCTRICO, PERIGOS DE ORIGEM MECÂNICA, BEM COMO DE OUTROS TIPOS.**

AVVERTENZA (IT)

IL PRESENTE MANUALE DI MANUTENZIONE è DISPONIBILE SOLTANTO IN INGLESE.

- **SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEHC RICHIEDE IL MANUALE IN UNA LINGUA DIVERSA, IL CLIENTE è TENUTO A PROVVEDERE DIRETTAMENTE ALLA TRADUZIONE.**
- **SI PROCEDA ALLA MANUTENZIONE DELL'APPARECCHIATURA SOLO DOPO AVER CONSULTATO IL PRESENTE MANUALE ED AVERNE COMPRESO IL CONTENUTO.**
- **NON TENERE CONTO DELLA PRESENTE AVVERTENZA POTREBBE FAR COMPIERE OPERAZIONI DA CUI DERIVINO LESIONI ALL'ADDETTO ALLA MANUTENZIONE, ALL'UTILIZZATORE ED AL PAZIENTE PER FOLGORAZIONE ELETTRICA, PER URTI MECCANICI OD ALTRI RISCHI.**

HOIATUS (ET)

KÄESOLEV TEENINDUSJUHEND ON SAADAVAL AINULT INGLISE KEELES.

- **KUI KLIENDITEENINDUSE OSUTAJA NÕUAB JUHENDIT INGLISE KEELEST ERINEVAS KEELES, VASTUTAB KLIENT TÕLKETEENUSE OSUTAMISE EEST.**
- **ÄRGE ÜRITAGE SEADMEID TEENINDADA ENNE EELNEVALT KÄESOLEVA TEENINDUSJUHENDIGA TUTVUMIST JA SELLEST ARU SAAMIST.**
- **KÄESOLEVA HOIATUSE EIRAMINE VÕIB PÕHJUSTADA TEENUSEOSUTAJA, OPERAATORI VÕI PATSIENDI VIGASTAMIST ELEKTRILÖÖGI, MEHAANILISE VÕI MUU OHU TAGAJÄRJEL.**

VAROITUS (FI)

TÄMÄ HUOLTO-OHJE ON SAATAVILLA VAIN ENGLANNIKSI.

- **JOS ASIAKKAAN PALVELUNTARJOAJA VAATII MUUTA KUIN ENGLANNINKIELISTÄ MATERIAALIA, TARVITTAVAN KÄÄNNÖKSEN HANKKIMINEN ON ASIAKKAAN VASTUULLA.**
- **ÄLÄ YRITÄ KORJATA LAITTEISTOA ENNEN KUIN OLET VARMASTI LUKENUT JA YMMÄRTÄNYT TÄMÄN HUOLTO-OHJEEN.**
- **MIKÄLI TÄTÄ VAROITUSTA EI NOUDATETA, SEURAUKSENA VOI OLLA PALVELUNTARJOAJAN, LAITTEISTON KÄYTTÄJÄN TAI POTILAAN VAHINGOITTUMINEN SÄHKÖISKUN, MEKAANISEN VIAN TAI MUUN VAARATILANTEEN VUOKSI.**

ΠΡΟΕΙΔΟΠΟΙΗΣΗ (EL)

ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ ΔΙΑΤΙΘΕΤΑΙ ΣΤΑ ΑΓΓΛΙΚΑ ΜΟΝΟ.

- **ΕΑΝ ΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ ΕΝΟΣ ΠΕΛΑΤΗ ΑΠΑΙΤΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕ ΓΛΩΣΣΑ ΕΚΤΟΣ ΤΩΝ ΑΓΓΛΙΚΩΝ, ΑΠΟΤΕΛΕΙ ΕΥΘΥΝΗ ΤΟΥ ΠΕΛΑΤΗ ΝΑ ΠΑΡΕΧΕΙ ΥΠΗΡΕΣΙΕΣ ΜΕΤΑΦΡΑΣΗΣ.**
- **ΜΗΝ ΕΠΙΧΕΙΡΗΣΕΤΕ ΤΗΝ ΕΚΤΕΛΕΣΗ ΕΡΓΑΣΙΩΝ ΣΕΡΒΙΣ ΣΤΟΝ ΕΞΟΠΛΙΣΜΟ ΕΚΤΟΣ ΕΑΝ ΕΧΕΤΕ ΣΥΜΒΟΥΛΕΥΤΕΙ ΚΑΙ ΕΧΕΤΕ ΚΑΤΑΝΟΗΣΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ.**
- **ΕΑΝ ΔΕ ΛΑΒΕΤΕ ΥΠΟΨΗ ΤΗΝ ΠΡΟΕΙΔΟΠΟΙΗΣΗ ΑΥΤΗ, ΕΝΔΕΧΕΤΑΙ ΝΑ ΠΡΟΚΛΗΘΕΙ ΤΡΑΥΜΑΤΙΣΜΟΣ ΣΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ, ΣΤΟ ΧΕΙΡΙΣΤΗ Ή ΣΤΟΝ ΑΣΘΕΝΗ ΑΠΟ ΗΛΕΚΤΡΟΠΛΗΞΙΑ, ΜΗΧΑΝΙΚΟΥΣ Ή ΑΛΛΟΥΣ ΚΙΝΔΥΝΟΥΣ.**

FIGYELMEZTETÉS (HU)

EZEN KARBANTARTÁSI KÉZIKÖNYV KIZÁRÓLAG ANGOL NYELVEN ÉRHETŐ EL.

- **HA A VEVŐ SZOLGÁLTATÓJA ANGOLTÓL ELTÉRŐ NYELVRE TART IGÉNYT, AKKOR A VEVŐ FELELŐSSÉGE A FORDÍTÁS ELKÉSZÍTTETÉSE.**
- **NE PRÓBÁLJA ELKEZDENI HASZNÁLNI A BERENDEZÉST, AMÍG A KARBANTARTÁSI KÉZIKÖNYVBEN LEÍRTAKAT NEM ÉRTELMEZTÉK.**
- **EZEN FIGYELMEZTETÉS FIGYELMEN KÍVÜL HAGYÁSA A SZOLGÁLTATÓ, MŰKÖDTETŐ VAGY A BETEG ÁRAMÜTÉS, MECHANIKAI VAGY EGYÉB VESZÉLYHELYZET MIATTI SÉRÜLÉSÉT EREDMÉNYEZHETI.**

VIÐVÖRUN (IS)

ÞESSI ÞJÓNUSTUHANDBÓK ER EINGÖNGU FÁANLEG Á ENSKU.

- **EF ÞJÓNUSTUAÐILI VIÐSKIPTAMANNS ÞARFNAST ANNARS TUNGUMÁLS EN ENSKU, ER ÞAÐ Á ÁBYRGÐ VIÐSKIPTAMANNS AÐ ÚTVEGA ÞÝÐINGU.**
- **REYNIÐ EKKI AÐ ÞJÓNUSTA TÆKIÐ NEMA EFTIR AÐ HAFA SKOÐAÐ OG SKILIÐ ÞESSA ÞJÓNUSTUHANDBÓK.**
- **EF EKKI ER FARIÐ AÐ ÞESSARI VIÐVÖRUN GETUR ÞAÐ VALDIÐ MEIÐSLUM ÞJÓNUSTUVEITANDA, STJÓRNANDA EÐA SJÚKLINGS VEGNA RAFLOSTS, VÉLRÆNNAR EÐA ANNARRAR HÆTTU.**

VÝSTRAHA (CS)

TENTO SERVISNÍ NÁVOD EXISTUJE POUZE V ANGLICKÉM JAZYCE.

- **V PŘÍPADĚ, ŽE POSKYTOVATEL SLUŽEB ZÁKAZNÍKŮM POTŘEBUJE NÁVOD V JINÉM JAZYCE, JE ZAJIŠTĚNÍ PŘEKLADU DO ODPOVÍDAJÍCÍHO JAZYKA ÚKOLEM ZÁKAZNÍKA.**
- **NEPROVÁDĚJTE ÚDRŽBU TOHOTO ZAŘÍZENÍ, ANIŽ BYSTE SI PŘEČETLI TENTO SERVISNÍ NÁVOD A POCHOPILI JEHO OBSAH.**
- **V PŘÍPADĚ NEDODRŽOVÁNÍ TÉTO VÝSTRAHY MŮŽE DOJÍT ÚRAZU ELEKTRICKÁM PROUDEM PRACOVNÍKA POSKYTOVATELE SLUŽEB, OBSLUŽNÉHO PERSONÁLU NEBO PACIENTŮ VLIVEM ELEKTRICKÉHO PROUDU, RESPEKTIVE VLIVEM K RIZIKU MECHANICKÉHO POŠKOZENÍ NEBO JINÉMU RIZIKU.**

ADVARSEL (DA)

DENNE SERVICEMANUAL FINDES KUN PÅ ENGELSK.

- **HVIS EN KUNDES TEKNIKER HAR BRUG FOR ET ANDET SPROG END ENGELSK, ER DET KUNDENS ANSVAR AT SØRGE FOR OVERSÆTTELSE.**
- **FORSØG IKKE AT SERVICERE UDSTYRET MEDMINDRE DENNE SERVICEMANUAL ER BLEVET LÆST OG FORSTÅET.**
- **MANGLENDE OVERHOLDELSE AF DENNE ADVARSEL KAN MEDFØRE SKADE PÅ GRUND AF ELEKTRISK, MEKANISK ELLER ANDEN FARE FOR TEKNIKEREN, OPERATØREN ELLER PATIENTEN.**

WAARSCHUWING (NL)

DEZE ONDERHOUDSHANDLEIDING IS ENKEL IN HET ENGELS VERKRIJGBAAR.

- **ALS HET ONDERHOUDSPERSONEEL EEN ANDERE TAAL VEREIST, DAN IS DE KLANT VERANTWOORDELIJK VOOR DE VERTALING ERVAN.**
- **PROBEER DE APPARATUUR NIET TE ONDERHOUDEN VOORDAT DEZE ONDERHOUDSHANDLEIDING WERD GERAADPLEEGD EN BEGREPEN IS.**
- **INDIEN DEZE WAARSCHUWING NIET WORDT OPGEVOLGD, ZOU HET ONDERHOUDSPERSONEEL, DE OPERATOR OF EEN PATIËNT GEWOND KUNNEN RAKEN ALS GEVOLG VAN EEN ELEKTRISCHE SCHOK, MECHANISCHE OF ANDERE GEVAREN.**

BRĪDINĀJUMS (LV)

ŠĪ APKALPES ROKASGRĀMATA IR PIEEJAMA TIKAI ANGĻU VALODĀ.

- **JA KLIENTA APKALPES SNIEDZĒJAM NEPIECIEŠAMA INFORMĀCIJA CITĀ VALODĀ, NEVIS ANGĻU, KLIENTA PIENĀKUMS IR NODROŠINĀT TULKOŠANU.**
- **NEVEICIET APRĪKOJUMA APKALPI BEZ APKALPES ROKASGRĀMATAS IZLASĪŠANAS UN SAPRAŠANAS.**
- **ŠĪ BRĪDINĀJUMA NEIEVĒROŠANA VAR RADĪT ELEKTRISKĀS STRĀVAS TRIECIENA, MEHĀNISKU VAI CITU RISKU IZRAISĪTU TRAUMU APKALPES SNIEDZĒJAM, OPERATORAM VAI PACIENTAM.**

ĮSPĖJIMAS (LT)

ŠIS EKSPLOATAVIMO VADOVAS YRA IŠLEISTAS TIK ANGLŲ KALBA.

- **JEI KLIENTO PASLAUGŲ TEIKĖJUI REIKIA VADOVO KITA KALBA – NE ANGLŲ, VERTIMU PASIRŪPINTI TURI KLIENTAS.**
- **NEMĖGINKITE ATLIKTI ĮRANGOS TECHNINĖS PRIEŽIŪROS DARBŲ, NEBENT VADOVAUTUMĖTĖS ŠIUO EKSPLOATAVIMO VADOVU IR JĮ SUPRASTUMĖTE**
- **NEPAISANT ŠIO PERSPĖJIMO, PASLAUGŲ TEIKĖJAS, OPERATORIUS AR PACIENTAS GALI BŪTI SUŽEISTAS DĖL ELEKTROS SMŪGIO, MECHANINIŲ AR KITŲ PAVOJŲ.**

ADVARSEL (NO)

DENNE SERVICEHÅNDBOKEN FINNES BARE PÅ ENGELSK.

- **HVIS KUNDENS SERVICELEVERANDØR TRENGER ET ANNET SPRÅK, ER DET KUNDENS ANSVAR Å SØRGE FOR OVERSETTELSE.**
- **IKKE FORSØK Å REPARERE UTSTYRET UTEN AT DENNE SERVICEHÅNDBOKEN ER LEST OG FORSTÅTT.**
- **MANGLENDE HENSYN TIL DENNE ADVARSELEN KAN FØRE TIL AT SERVICELEVERANDØREN, OPERATØREN ELLER PASIENTEN SKADES PÅ GRUNN AV ELEKTRISK STØT, MEKANISKE ELLER ANDRE FARER.**

OSTRZEŻENIE (PL)

NINIEJSZY PODRĘCZNIK SERWISOWY DOSTĘPNY JEST JEDYNIE W JĘZYKU ANGIELSKIM.

- **JEŚLI FIRMA ŚWIADCZĄCA KLIENTOWI USŁUGI SERWISOWE WYMAGA UDOSTĘPNIENIA PODRĘCZNIKA W JĘZYKU INNYM NIŻ ANGIELSKI, OBOWIĄZEK ZAPEWNIENIA STOSOWNEGO TŁUMACZENIA SPOCZYWA NA KLIENCIE.**
- **NIE PRÓBOWAĆ SERWISOWAĆ NINIEJSZEGO SPRZĘTU BEZ UPRZEDNIEGO ZAPOZNANIA SIĘ Z PODRĘCZNIKIEM SERWISOWYM.**
- **NIEZASTOSOWANIE SIĘ DO TEGO OSTRZEŻENIA MOŻE GROZIĆ OBRAŻENIAMI CIAŁA SERWISANTA, OPERATORA LUB PACJENTA W WYNIKU PORAŻENIA PRĄDEM, URAZU MECHANICZNEGO LUB INNEGO RODZAJU ZAGROŻEŃ.**

ATENȚIE (RO)

ACEST MANUAL DE SERVICE ESTE DISPONIBIL NUMAI ÎN LIMBA ENGLEZĂ.

- **DACĂ UN FURNIZOR DE SERVICII PENTRU CLIENȚI NECESITĂ O ALTĂ LIMBĂ DECÂT CEA ENGLEZĂ, ESTE DE DATORIA CLIENTULUI SĂ FURNIZEZE O TRADUCERE.**
- **NU ÎNCERCAȚI SĂ REPARAȚI ECHIPAMENTUL DECÂT ULTERIOR CONSULTĂRII ŞI ÎNȚELEGERII ACESTUI MANUAL DE SERVICE.**
- **IGNORAREA ACESTUI AVERTISMENT AR PUTEA DUCE LA RĂNIREA DEPANATORULUI, OPERATORULUI SAU PACIENTULUI ÎN URMA PERICOLELOR DE ELECTROCUTARE, MECANICE SAU DE ALTĂ NATURĂ.**

ОСТОРОЖНО! (RU)

Данное руководство по обслуживанию ПРЕДОСТАВЛЯЕТСЯ только на английском Языке.

- **Если сервисноМУ ПЕРСОНАЛУ клиента необходимо руководство не на английском ЯЗЫКЕ, клиенту следует самостоЯтельно ОБЕСПЕЧИТЬ перевод.**
- **ПЕРЕД ОБСЛУЖИВАНИЕМ ОБОРУДОВАНИЯ ОБЯЗАТЕЛЬНО ОБРАТИТЕСЬ К ДАННОМУ РУКОВОДСТВУ И ПОЙМИТЕ ИЗЛОЖЕННЫЕ В НЕМ СВЕДЕНИЯ.**
- **НЕСОБЛЮДЕНИЕ УКАЗАННЫХ ТРЕБОВАНИЙ МОЖЕТ ПРИВЕСТИ К ТОМУ, ЧТО СПЕЦИАЛИСТ ПО ТЕХОБСЛУЖИВАНИЮ, ОПЕРАТОР ИЛИ ПАЦИЕНТ ПОЛУЧАТ УДАР ЗЛЕКТРИЧЕСКИМ ТОКОМ, МЕХАНИЧЕСКУЮ ТРАВМУ ИЛИ ДРУГОЕ ПОВРЕЖДЕНИЕ.**

ПРЕДУПРЕЖДЕНИЕ (BG)

ТОВА СЕРВИЗНО РЪКОВОДСТВО Е НАЛИЧНО САМО НА АНГЛИЙСКИ ЕЗИК.

- **АКО ДОСТАВЧИКЪТ НА СЕРВИЗНИ УСЛУГИ НА КЛИЕНТ СЕ НУЖДАЕ ОТ ЕЗИК, РАЗЛИЧЕН ОТ АНГЛИЙСКИ, ЗАДЪЛЖЕНИЕ НА КЛИЕНТА Е ДА ПРЕДОСТАВИ ПРЕВОДАЧЕСКА УСЛУГА.**
- **НЕ СЕ ОПИТВАЙТЕ ДА ИЗВЪРШВАТЕ СЕРВИЗНО ОБСЛУЖВАНЕ НА ТОВА ОБОРУДВАНЕ, ОСВЕН ВСЛУЧАЙ, ЧЕ СЕРВИЗНОТО РЪКОВОДСТВО Е ПРОЧЕТЕНО И СЕ РАЗБИРА.**
- **НЕСПАЗВАНЕТО НА ТОВА ПРЕДУПРЕЖДЕНИЕ МОЖЕ ДА ДОВЕДЕ ДО НАРАНЯВАНЕ НА ДОСТАВЧИКА НА СЕРВИЗНИ УСЛУГИ, НА ОПЕРАТОРА ИЛИ ПАЦИЕНТА ВСЛЕДСТВИЕНА ТОКОВ УДАР, МЕХАНИЧНИ ИЛИ ДРУГИ РИСКОВЕ.**

UPOZORENJE (SR)

OVAJ PRIRUČNIK ZA SERVISIRANJE DOSTUPAN JE SAMO NA ENGLESKOM JEZIKU.

- **AKO KLIJENTOV SERVISER ZAHTEVA JEZIK KOJI NIJE ENGLESKI, ODGOVORNOST JE NA KLIJENTU DA PRUŽI USLUGE PREVOĐENJA.**
- **NEMOJTE POKUŠAVATI DA SERVISIRATE OPREMU AKO NISTE PROČITALI I RAZUMELI PRIRUČNIK ZA SERVISIRANJE.**
- **AKO NE POŠTUJETE OVO UPOZORENJE, MOŽE DOĆI DO POVREĐIVANJA SERVISERA, OPERATERA ILI PACIJENTA UZROKOVANOG ELEKTRIČNIM UDAROM, MEHANIČKIM I DRUGIM OPASNOSTIMA.**

OPOZORILO (SL)

TA SERVISNI PRIROČNIK JE NA VOLJO SAMO V ANGLEŠČINI.

- **ČE PONUDNIK SERVISNIH STORITEV ZA STRANKO POTREBUJE NAVODILA V DRUGEM JEZIKU, JE ZA PREVOD ODGOVORNA STRANKA SAMA.**
- **NE POSKUŠAJTE SERVISIRATI OPREME, NE DA BI PREJ PREBRALI IN RAZUMELI SERVISNI PRIROČNIK.**
- **ČE TEGA OPOZORILA NE UPOŠTEVATE, OBSTAJA NEVARNOST ELEKTRIČNEGA UDARA, MEHANSKIH ALI DRUGIH NEVARNOSTI IN POSLEDIČNIH POŠKODB PONUDNIKA SERVISNIH STORITEV, UPORABNIKA OPREME ALI PACIENTA.**

UPOZORENJE (HR)

OVAJ SERVISNI PRIRUČNIK DOSTUPAN JE SAMO NA ENGLESKOM JEZIKU.

- **AKO KLIJENTOV SERVISER ZAHTIJEVA JEZIK KOJI NIJE ENGLESKI, ODGOVORNOST KLIJENTA JE PRUŽITI USLUGE PREVOĐENJA.**
- **NEMOJTE POKUŠAVATI SERVISIRATI OPREMU AKO NISTE PROČITALI I RAZUMJELI SERVISNI PRIRUČNIK.**
- **AKO NE POŠTUJETE OVO UPOZORENJE, MOŽE DOĆI DO OZLJEDE SERVISERA, OPERATERA ILI PACIJENTA PROUZROČENE STRUJNIM UDAROM, MEHANIČKIM I DRUGIM OPASNOSTIMA.**

UPOZORNENIE (SK)

TÁTO SERVISNÁ PRÍRUČKA JE K DISPOZíCII LEN V ANGLIČTINE.

- **AK ZÁKAZNÍKOV POSKYTOVATEĽ SLUŽIEB VYŽADUJE INÝ JAZYK AKO ANGLIČTINU, POSKYTNUTIE PREKLADATEĽSKÝCH SLUŽIEB JE ZODPOVEDNOSŤOU ZÁKAZNÍKA.**
- **NEPOKÚŠAJTE SA VYKONÁVAŤ SERVIS ZARIADENIA SKÔR, AKO SI NEPREČÍTATE SERVISNÚ PRÍRUČKU A NEPOROZUMIETE JEJ.**
- **ZANEDBANIE TOHTO UPOZORNENIA Môže VYÚSTIŤ DO ZRANENIA POSKYTOVATEĽA SLUŽIEB, OBSLUHUJúCEJ OSOBY ALEBO PACIENTA ELEKTRICKýM PRúDOM, PRÍPADNE DO MECHANICKéHO ALEBO INéHO NEBEZPEčENSTVA.**

VARNING (SV)

DEN HÄR SERVICEHANDBOKEN FINNS BARA TILLGÄNGLIG PÅ ENGELSKA.

- **OM EN KUNDS SERVICETEKNIKER HAR BEHOV AV ETT ANNAT SPRÅK ÄN ENGELSKA ANSVARAR KUNDEN FÖR ATT TILLHANDAHÅLLA ÖVERSÄTTNINGSTJÄNSTER.**
- **FÖRSÖK INTE UTFÖRA SERVICE PÅ UTRUSTNINGEN OM DU INTE HAR LÄST OCH FÖRSTÅR DEN HÄR SERVICEHANDBOKEN.**
- **OM DU INTE TAR HÄNSYN TILL DEN HÄR VARNINGEN KAN DET RESULTERA I SKADOR PÅ SERVICETEKNIKERN, OPERATÖREN ELLER PATIENTEN TILL FÖLJD AV ELEKTRISKA STÖTAR, MEKANISKA FAROR ELLER ANDRA FARORA.**

DİKKAT (TR)

BU SERVİS KILAVUZU YALNIZCA İNGİLİZCE OLARAK SAĞLANMIŞTIR.

- **EĞER MÜŞTERİ TEKNİSYENİ KILAVUZUN İNGİLİZCE DIŞINDAKİ BİR DİLDE OLMASINI İSTERSE, KILAVUZU TERCÜME ETTİRMEK MÜŞTERİNİN SORUMLULUĞUNDADIR.**
- **SERVİS KILAVUZUNU OKUYUP ANLAMADAN EKİPMANLARA MÜDAHALE ETMEYİNİZ.**
- **BU UYARININ GÖZ ARDI EDİLMESİ, ELEKTRİK ÇARPMASI YA DA MEKANİK VEYA DİĞER TÜRDEN KAZALAR SONUCUNDA TEKNİSYENİN, OPERATÖRÜN YA DA HASTANIN YARALANMASINA YOL AÇABİLİR.**

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DANGER **DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING, TESTING AND ADJUSTING.**

WARNING ***Use all Personal Protection Equipment (PPE) such as gloves, safety shoes, safety glasses, and kneeling pad, to reduce the risk of injury.***

For a complete review of all safety requirements, see the Chapter 1, Safety Considerations section in the Service Manual.

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Revision	Date	Reason for change
1	23, Qct. 2009	Initial Release
2	13, May 2010	Update for Software update and adding new probes
3	29, June 2010	Update to add Isolation Cart enhanced Version
4	30, November 2010	Update LOGIQ e Spare Parts and add USA CKD address
5	25, April 2011	Add Vivid e R6.x.x
6	25, Sep 2011	Update for LOGIQ e Vet R6.x.x
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Title Page	7	3-1 to 3-32	7	8-1 to 8-10	7
Warnings i to -xii	7	4-1 to 4-38	7	9-1 to 9-32	7
TOC	7	5-1 to 5-20	7	10-1 to 10-21	7
1-1 to 1-20	7	6-1 to 6-2	7	Index	7
2-1 to 2-10	7	7-1 to 7-28	7	Back Cover	N/A

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Chapter 1 Introduction

Section 1-1 Overview

1-1-1 Purpose of Chapter 1

This chapter describes important issues related to safely servicing this ultrasound machine. The service provider must read and understand all the information presented here before installing or servicing a unit.

1-1-2 Chapter Contents

Table 1-1 Contents in Chapter 1

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1-3	Safety Considerations	1-12
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1-1-3 Purpose of Service Manual

This Service Manual provides service information for the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Ultrasound Scanning System. It contains the following chapters:

1.) **Chapter 1 - Introduction:** Contains a content summary and warnings.
2.) **Chapter 2 - Site preparations:** Contains pre-installation requirements for the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e .
3.) **Chapter 3 - System Setup:** Contains installation procedures.
4.) **Chapter 4 - Functional Checks:** Contains functional checks that are recommended as part of the installation, or as required during servicing and periodic maintenance.
5.) **Chapter 5 - Components and Functions (Theory):** Contains block diagrams and functional explanations of the electronics.
6.) **Chapter 6 - Service Adjustments:** Contains instructions on how to make available adjustments to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e .
7.) **Chapter 7 - Diagnostics/Troubleshooting:** Provides procedures for running diagnostic or related routines for the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e .
8.) **Chapter 8 - Replacement Procedures:** Provides disassembly procedures and reassembly procedures for all changeable Field Replaceable Units (FRU).
9.) **Chapter 9 - Renewal Parts:** Contains a complete list of field replaceable parts for the LOGIQ e/ LOGIQ e Vet/LOGIQ i/Vivid e .
10.) **Chapter 10 - Care & Maintenance:** Provides periodic maintenance procedures for the LOGIQ e/ LOGIQ e Vet/LOGIQ i/Vivid e .

1-1-4 Typical Users of the Basic Service Manual

- Service Personnel (installation, maintenance, etc.).
- Hospital's Service Personnel
- Contractors (Some parts of Chapter 2 - Site Preparations)

1-1-5 LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Models Covered by this Manual

Table 1-2 LOGIQ e R4.x.x Model Designations

Part Number	Description
5151219	LOGIQ e R4.x.x Console for USA
5151220	LOGIQ e R4.x.x Console for Argentina
5151243	LOGIQ e R4.x.x Console for Europe
5151247	LOGIQ e R4.x.x Console for China
5151252	LOGIQ e R4.x.x Console for Japanese
5151253	LOGIQ e R4.x.x Console for Australia
5151251	LOGIQ e R4.x.x Console for India

Table 1-3 LOGIQ e R5.0.x / LOGIQ e Vet Model Designations

Part Number	Description
5199260	LOGIQ e / LOGIQ e Vet R5.0.x Console for USA
5198329	LOGIQ e / LOGIQ e Vet R5.0.x Console for Argentina
5199670	LOGIQ e / LOGIQ e Vet R5.0.x Console for Europe
5198793	LOGIQ e / LOGIQ e Vet R5.0.x Console for China
5198161	LOGIQ e / LOGIQ e Vet R5.0.x Console for Japanese
5199693	LOGIQ e / LOGIQ e Vet R5.0.x Console for Australia
5212841	LOGIQ e / LOGIQ e Vet R5.0.x Console for India

Table 1-4 LOGIQ e R5.2.x Model Designations

Part Number	Description
5323370	LOGIQ e R5.2.x Console for USA
5323375	LOGIQ e R5.2.xConsole for Argentina
5323371	LOGIQ e R5.2.xConsole for Europe
5323380	LOGIQ e R5.2.xConsole for Japanese
5323378	LOGIQ e R5.2.xConsole for Australia
5323377	LOGIQ e R5.2.x Console for India

Table 1-5 LOGIQ e R6.x.x Model Designations

Part Number	Description
5389028	LOGIQ e R6.x.x Console for USA
5389808	LOGIQ e R6.x.x Console for Argentina
5389810	LOGIQ e R6.x.x Console for Europe
5389811	LOGIQ e R6.x.x Console for Chinese
5389812	LOGIQ e R6.x.x Console for Japanese
5389813	LOGIQ e R6.x.x Console for Australia
5389814	LOGIQ e R6.x.x Console for India
5410642	LOGIQ e R6.x.x Console for CKD USA
5410642	LOGIQ e R6.x.x Console for CKD Taiwan

Table 1-6 LOGIQ e R6.x.x Model Designations

Part Number	Description
5432745	LOGIQ e R7.x.x Console for USA
5432746	LOGIQ e R7.x.x Console for Europe
5432747	LOGIQ e R7.x.x Console for Japan

Table 1-7 LOGIQ i R4.x.x Model Designations

Part Number	Description
5176830	LOGIQ i R4.1.x Console for USA
5179969	LOGIQ i R4.1.x Console for Argentina
5179685	LOGIQ i R4.1.x Console for Europe
5179209	LOGIQ i R4.1.x Console for China
5179748	LOGIQ i R4.1.x Console for Japanese
5179191	LOGIQ i R4.1.x Console for Australia
5179176	LOGIQ i R4.1.x Console for India

Table 1-8 LOGIQ i R5.x.x Model Designations

Part Number	Description
5245475	LOGIQ i R5.x.x Console for USA
5245476	LOGIQ i R5.x.x Console for Argentina
5245477	LOGIQ i R5.x.x Console for Europe
5245478	LOGIQ i R5.x.x Console for China
5245480	LOGIQ i R5.x.x Console for Australia
5245481	LOGIQ i R5.x.x Console for India

Table 1-9 Vivid e R4.x.x Model Designations

Part Number	Description
5171613	Vivid e R4.x.x Console for USA
5172528	Vivid e R4.x.x Console for Argentina
5171633	Vivid e R4.x.x Console for Europe
5171603	Vivid e R4.x.xConsole for China
5171755	Vivid e R4.x.x Console for Japanese
5172272	Vivid e R4.x.x Console for Australia
5172286	Vivid e R4.x.x Console for India/South Africa
5183318	Vivid e R4.x.x Console with SKD ECG

Table 1-10 Vivid e R5.x.x Model Designations

Part Number	Description
5198601	Vivid e R5.x.x Console for USA
5212203	Vivid e R5.x.x Console for Argentina
5212894	Vivid e R5.x.x Console for Asia

Table 1-10 Vivid e R5.x.x Model Designations

Part Number	Description
5199815	Vivid e R5.x.x Console for China
5213329	Vivid e R5.x.x Console for Japan
5212851	Vivid e R5.x.x Console for Australia
5199644	Vivid e R5.x.x Console for India/South Africa
5183318	Vivid e R5.x.x Console with SKD ECG for Europe

Table 1-11 Vivid e R6.x.x Model Designations

Part Number	Description
5411312	Vivid e R6.x.x Console for EU
5411381	Vivid e R6.x.x Console for USA
5411382	Vivid e R6.x.x Console for China
5411383	Vivid e R6.x.x Console for Argentina
5411384	Vivid e R6.x.x Console for Japan
5411385	Vivid e R6.x.x Console for Australia
5411386	Vivid e R6.x.x Console for India
5411388	Vivid e R6.x.x Console for SKD ECG
5410641	Vivid e R6.x.x Console for CKD Taiwan

Table 1-12 LOGIQ e Vet R6.x.x Model Designations

Part Number	Description
5198415-2	LOGIQ e Vet R6.x.x Console for EU
5199518-2	LOGIQ e Vet R6.x.x Console for USA

1-1-6 Purpose of Operator Manual(s)

The Operator Manual(s) should be fully read and understood before operating the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e and also kept near the unit for quick reference.

Section 1-2
Important Conventions

1-2-1 Conventions Used in Book

Icons

Pictures, or icons, are used wherever they reinforce the printed message. The icons, labels and conventions used on the product and in the service information are described in this chapter.

Safety Precaution Messages

Various levels of safety precaution messages may be found on the equipment and in the service information. The different levels of concern are identified by a flag word that precedes the precautionary message. Known or potential hazards are labeled in one of following ways:

DANGER **DANGER IS USED TO INDICATE THE PRESENCE OF A HAZARD THAT WILL CAUSE SEVERE PERSONAL INJURY OR DEATH IF THE INSTRUCTIONS ARE IGNORED.**

WARNING ***WARNING IS USED TO INDICATE THE PRESENCE OF A HAZARD THAT CAN CAUSE SEVERE PERSONAL INJURY AND PROPERTY DAMAGE IF INSTRUCTIONS ARE IGNORED.***

CAUTION **Caution is used to indicate the presence of a hazard that will or can cause minor personal injury and property damage if instructions are ignored.**

NOTICE **Equipment Damage Possible**

Notice is used when a hazard is present that can cause property damage but has absolutely no personal injury risk.

*Example***:** Disk drive will crash.

NOTE: Notes provide important information about an item or a procedure. Information contained in a NOTE can often save you time or effort.

1-2-2 Standard Hazard Icons

Important information will always be preceded by the exclamation point contained within a triangle, as seen throughout this chapter. In addition to text, several different graphical icons (symbols) may be used to make you aware of specific types of hazards that could cause harm.

Table 1-13 Standard Hazard Icons

ELECTRICAL	MECHANICAL	RADIATION
LASER	**HEAT**	**PINCH**

Other hazard icons make you aware of specific procedures that should be followed.

Table 1-14 Standard Icons Indicating a Special Procedure Be Used

AVOID STATIC ELECTRICITY	TAG AND LOCK OUT	WEAR EYE PROTECTION

1-2-3 Product Icons

The following table describes the purpose and location of safety labels and other important information provided on the equipment.

Table 1-15 Warnings

LABEL/SYMBOL	PURPOSE/MEANING	LOCATION
Identification and Rating Plate	• Manufacture's name and address • Date of manufacture • Model and serial numbers • Electrical ratings (Volts, Amps, phase, and frequency)	Bottom panel of the console
Type/Class Label	Used to indicate the degree of safety or protection.	Bottom panel of the adapter.
IP Code (IPX1 or IPX8) IPX1: FSU-2001 IPX8: MKF 2-MED GP26, FSU-1000	Indicates the degree of protection provided by the enclosure per IEC60 529. IPX1 cannot be used in operating room environment; IPX8 can be used in operating room environment.	Bottom of Footswitch
	Authorized European Representative address	Bottom panel
	United States only Prescription Requirement label	Bottom panel
	Equipment Type BF (man in the box symbol) IEC 878-02-03 indicates B Type equipment having a floating applied part.	Probe connectors
	General Warning.	Various
	"CAUTION - Dangerous voltage" (the lightning flash with arrowhead in equilateral triangle) is used to indicate electric shock hazards.	Various

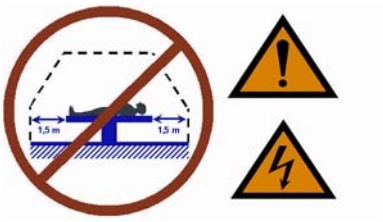
Table 1-15 Warnings

LABEL/SYMBOL	PURPOSE/MEANING	LOCATION
	"Protective Earth" indicates the protective earth (grounding) terminal.	Inside of AC adapter
	"ON" indicates the power on position of the power switch. CAUTION This Power Switch DOES NOT ISOLATE Mains Supply	Stick to Power Switch
	"TUV" Listing and Certification Mark is used to designate conformance to nationally recognized product safety standards. The Mark bears the name and /or logo of the testing laboratory, product category, safety standard is assessed and a control number.	Bottom panel of the console
	Date of manufacture. The date could be a year, year and month, or year, month and day, as appropriate. See ISO 8601 for date formates.	Rating Plate
	Catalog or model number.	Rating Plate
	Serial number	Rating Plate
	Direct Current. For products to be powered from a DC supply.	Rating Plate
	Input	Rating Plate
	For use with adapter model TWADP 100	Rating Plate
	Description	Rating Plate
	Type CF Defib-Proof Applied Part (heart in the box with paddle) symbolis in accordance with IEC 60878-02-06.	ECG Module

Table 1-15 Warnings

LABEL/SYMBOL	PURPOSE/MEANING	LOCATION
	"Consult accompanying documents" is intended to alert the user to refer to the operator manual or other instructions when complete information cannot be provided on the label.	Various
	Do not push the system.	Rear of Docking Cart and rear of Isolation Cart.
	This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.	Rating Plate
	When closing the LCD cover, use caution to avoid injuring hands or fingers as there is a closing mechanism which allows the LCD cover to automatically close.	Rating Plate
	Indicates the product contains hazardous materials in excess of the limits established by Chinese standard SJ/T11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products. The number in the symbol is the Environment-friendly Use Period (EFUP), which indicates the period during which the toxic or hazardous substances or elements contained in electronic information products will not leak or mutate under normal operating conditions so that the use of such electronic information products will not result in any severe environmental pollution, any bodily injury or damage to any assets.	Rear panel, rating plate
	This product consists of devices that may contain mercury, which must be recycled or disposed of in accordance with local, state, or country laws. (Within this system, the backlight lamps in the monitor display contain mercury.)	Bottom panel of the console

Table 1-15 Warnings

LABEL/SYMBOL	PURPOSE/MEANING	LOCATION
	The separate collection symbol is affixed to a battery, or its packaging, to advise you that the battery must be recycled or disposed of in accordance with local or country laws. The letters below the separate collection symbol indicate whether certain elements (Pb=Lead, Cd=Cadmium, Hg=Mercury) are contained in the battery. To minimize potential effects on the environment and human health, it is important that all marked batteries that you remove from the product are properly recycled or disposed. For information on how the battery may be safely removed from the device, please consult the service manual or equipment instructions. Information on the potential effects on the environment and human health of the substances used in batteries is available at this url: http://www.gehealthcare.com/euen/weee-recycling/index.html	Battery Pack
	No hazardous substance, above the maximum concentration value, is present. Maximum concentration values for electronic information products, as set by the People's Republic of China Electronic Industry Standard SJ/T11364-2006, include the hazardous substances of lead, mercury, hexavalent chromium, cadmium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE).	
	Do not connect the DVD-RW to the system while scanning.	DVD-RW
	GOST Symbol. Russia Regulatory Country Clearance.	Bottom

Section 1-3
Safety Considerations

1-3-1 Introduction

The following safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual, violates safety standards of design, manufacture and intended use of the equipment.

1-3-2 Human Safety

Operating personnel must not remove the system covers.
Servicing should be performed by authorized personnel only.
Only personnel who have participated in a LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Training are authorized to service the equipment.

1-3-3 Mechanical Safety

⚠ **WARNING** ***Ultrasound probes are highly sensitive medical instruments that can easily be damaged by improper handling. Use care when handling and protect from damage when not in use. Do not use a damaged or defective probe. Failure to follow these precautions can result in serious injury and equipment damage.***

⚠ **WARNING** ***Never use a probe that has fallen to the floor. Even if it looks ok, it may be damaged.***

⚠ **CAUTION** **The LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e weights 4.6kg or more, depending on installed peripherals, when ready for use. To avoid possible injury and equipment damage:**

ALWAYS:

- **Use the handle to move the system.**
- **Do not let the system strike walls or door frame.**
- **Limit movement to a slow careful walk.**

NOTE: Special care should be taken when transporting the unit in a vehicle:

- *Before transporting, place the system in its special storage case.*
- *Ensure that the system is firmly secured while inside the vehicle.*
- *Secure system with straps or as directed otherwise to prevent motion during transport.*
- Prevent vibration damage by driving cautiously. Avoid unpaved roads, excessive speeds, and erratic stops or starts.

1-3-4 Electrical Safety

To minimize shock hazard, the equipment chassis must be connected to an electrical ground. The system is equipped with a three-conductor AC power cable. This must be plugged into an approved electrical outlet with protective ground.

The power outlet used for this equipment should not be shared with other types of equipment.

Both the system power cable and the power connector meet international electrical standards.

1-3-5 Label Location

Please refer to Basic User Manual for label location information.

1-3-6 Battery Safety

To avoid the risk of injury, follow the warning and cautions to make sure that the battery does not burst, ignite, or generate heat of fumes.

WARNING

- **The battery has a safety device. Do not disassemble or alter the battery.**
- **Charge and discharge the batteries only when the ambient temperature is between 10 and 40 C (50 F and 122 F).**
- **Do not short-circuit the battery by directly connecting the negative terminals with metal objects.**
- **Do not heat the battery or discard it in a fire.**
- **Do not expose the battery to temperature over 50° C (122° F). Keep it away from fire and other heat sources.**
- **Do not charge the battery near a heat source, such as a fire or heater.**
- **Do not leave the battery in direct sunlight.**
- **Do not drop packs from height to prevent them from possible malfunction damage.**
- **Do not pierce the battery with a sharp object, hit it, or step on it.**
- **Do not use a damaged battery.**
- **Do not solder a battery.**
- **Do not connect the battery to an electrical power outlet.**
- **Do not contact PCM (Power Control and Monitor, it's a small board in the battery) directly to prevent packs from ESD damage.**
- **In case of longer non-use of the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e , please make sure the battery is removed.**

CAUTION **To avoid the battery bursting, igniting, or fumes from the battery causing equipment damage, observe the following precautions:**

- **Do not immerse the battery in water or allow it to get wet.**
- **Do not put the battery into a microwave oven or pressurized container.**
- **If the battery leaks or emits an odor, remove it from all possible flammable sources.**
- **If the battery emits an odor or heat, is deformed or discolored, or in a way appears abnormal during use, recharging or storage, immediately remove it and stop using it. If you have any questions about the battery, consult GE or your local representative.**
- **Short term (less than one month) storage of battery pack:**
  - **Store the battery in a temperature range between 0° C (32° F) and 50° C (122°F).**
- **Use only GE recognized batteries.**
- **In case of the long term (3 months or more) storage:**
  - **Store the battery in a temperature range of -20° C (-4° F) and 45° C (113°F).**
  - **When charging for the first time after long-term storage. Recover such packs to original performance through repeating several cycles of full charging and discharging.**
  - **When store packs for more than 6 months, charge at lease once charging require per 6 months to prevent leakage and deterioration in performance due to self-discharging.**
- **When the system isn't powered on continuously more than 6 months, in order to prevent leakage and deterioration in performance of CMOS battery, power on the system at least once per 6 months for more than 10 hours to have CMOS battery fully charged. Time and date need to be re-setup.**

NOTICE The battery shall be shipped in about 30% charged state. Those packs have to be fully charged and discharged up to 3 times to utilize Li-Ion smart packs before use.

1-3-7 Dangerous Procedure Warnings

Warnings, such as the examples below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.

DANGER **DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING, TESTING AND ADJUSTING.**

WARNING ***EXPLOSION WARNING***

DO NOT OPERATE THE EQUIPMENT IN AN EXPLOSIVE ATMOSPHERE. OPERATION OF ANY ELECTRICAL EQUIPMENT IN SUCH AN ENVIRONMENT CONSTITUTES A DEFINITE SAFETY HAZARD.

WARNING ***DO NOT SUBSTITUTE PARTS OR MODIFY EQUIPMENT***

BECAUSE OF THE DANGER OF INTRODUCING ADDITIONAL HAZARDS, DO NOT INSTALL SUBSTITUTE PARTS OR PERFORM ANY UNAUTHORIZED MODIFICATION OF THE EQUIPMENT.

WARNING ***SHUT DOWN FORCEDLY OR PLUG IN/OUT ACDC INVALID MAY CAUSE THE DAMAGE OF SYSTEM FILES.***

1-3-8 Lockout/Tagout (LOTO) requirements

Follow OSHA Lockout/Tagout requirements (USA) or local Lockout/Tagout requirements by ensuring you are in total control of the AC power plug at all times during the service process.

To apply Lockout/Tagout:

1.) Plan and prepare for shutdown.
2.) Shutdown the equipment.
3.) Isolate the equipment.
4.) Apply Lockout/Tagout Devices.
5.) Remove battery.
6.) Control all stored and residual energy.
7.) Verify isolation.
All potentially hazardous stored or residual energy is relieved.

NOTICE Energy Control and Power Lockout for LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

WHEN SERVICING PARTS OF THE SYSTEM WHERE THERE IS EXPOSURE TO VOLTAGE GREATER THAN 30 VOLTS:
1. TURN OFF THE SCANNER.
2. UNPLUG THE SYSTEM.
3. MAINTAIN CONTROL OF THE SYSTEM POWER PLUG.
4. WAIT FOR AT LEAST 20 SECONDS FOR CAPACITORS TO DISCHARGE AS THERE ARE NO TEST POINTS TO VERIFY ISOLATION. THE AMBER LIGHT ON THE OP PANEL ON/OFF BUTTON WILL TURN OFF.
5. REMOVE THE SYSTEM BATTERY.

1-3-9 Returning/Shipping Probes and Repair Parts

Equipment being returned must be clean and free of blood and other infectious substances.

GEMS policy states that body fluids must be properly removed from any part or equipment prior to shipment. GEMS employees, as well as customers, are responsible for ensuring that parts/equipment have been properly decontaminated prior to shipment. Under no circumstance should a part or equipment with visible body fluids be taken or shipped from a clinic or site (for example, body coils or an ultrasound probe).

The purpose of the regulation is to protect employees in the transportation industry, as well as the people who will receive or open this package.

NOTE: The US Department of Transportation (DOT) has ruled that "items that were saturated and/or dripping with human blood that are now caked with dried blood; or which were used or intended for use in patient care" are "regulated medical waste" for transportation purposes and must be transported as a hazardous material.

NOTE: The USER/SERVICE staff should dispose all the waste properly as per federal, state, and local waste disposal regulation.

The ultrasound system is not meant to be long term storage of patient data or images. The user us responsible for the date on the system and a regular backup is highly recommended.

If the system is sent for repair, please ensure that any patient information is backup and erased from the system before shipping. It is always possible during system failure and repair to lose patient data. GE is not responsible for the loss of this data.

If PHI (Patient Healthcare Information) data needs to be sent to GE employees for service purposes, GE will ascertain agreement from the customer. The patient information shall only be transferred by approved service processes, tools and devices restricting access, protecting or encrypting data where required, and providing traceability in the form of paper or electronic documents at each stage of the procedure while maintaining compliance with cross-border restrictions of patient information transfers.

Section 1-4
EMC, EMI, and ESD

1-4-1 Electromagnetic Compatibility (EMC)

Electromagnetic compatibility describes a level of performance of a device within its electromagnetic environment. This environment consists of the device itself and its surroundings including other equipment, power sources and persons with which the device must interface. Inadequate compatibility results when a susceptible device fails to perform as intended due interference from its environment or when the device produces unacceptable levels of emission to its environment. This interference is often referred to as radio–frequency or electromagnetic interference (RFI/EMI) and can be radiated through space or conducted over interconnecting power of signal cables. In addition to electromagnetic energy, EMC also includes possible effects from electrical fields, magnetic fields, electrostatic discharge and disturbances in the electrical power supply.

1-4-2 CE Compliance

The LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e unit conforms to all applicable conducted and radiated emission limits and to immunity from electrostatic discharge, radiated and conducted RF fields, magnetic fields and power line transient requirements.

For applicable standards refer to the Safety Chapter in the Basic User Manual.

NOTE: ***For CE Compliance, it is critical that all covers, screws, shielding, gaskets, mesh, clamps, are in good condition, installed tightly without skew or stress. Proper installation following all comments noted in this service manual is required in order to achieve full EMC performance.***

1-4-3 Electrostatic Discharge (ESD) Prevention

⚠ **WARNING** ***DO NOT TOUCH ANY BOARDS WITH INTEGRATED CIRCUITS PRIOR TO TAKING THE NECESSARY ESD PRECAUTIONS:***

1.FOLLOW GENERAL GUIDELINES FOR HANDLING OF ELECTROSTATIC SENSITIVE EQUIPMENT.

Section 1-5
Customer Assistance

1-5-1 Contact Information

If this equipment does not work as indicated in this service manual or in the User Manual, or if you require additional assistance, please contact the local distributor or appropriate support resource, as listed below.

Prepare the following information before you call:

- System ID serial number.
- Software version.

Table 1-16 Phone Numbers for Customer Assistance

Location	Phone Number	
USA GE Medical Systems Ultrasound Service Engineering 9900 Innovation Drive Wauwatosa, WI 53226	Service: On-site Service: Parts Applications support	1-800–437–1171 1-800-558-2040 1-800-682-5327 or 1-262-524-5698
Canada		1-800-668-0732
Latin America	Service Applications support	1-800-321-7937 1-262-524-5698
Europe GE Ultraschall Deutschland GmbH& Co. KG BeethovenstraBe 239 Postfach 11 05 60, D-42665 Solingen Germany	Phone: +33 (0)130-831-300 (General Imaging and Cardiac) Fax: +49 (0)212-2802-431	
Asia (Singapore) GE Ultrasound Asia Service Department - Ultrasound 298 Tiong Bahru Road #15-01/06 Central Plaza Singapore 169730	Tel: +65 291-8528 Fax: +65 6291-7006	
Japan Support Center	Phone: 81-42-648-2944 Fax: 81-42-648-2905	

1-5-2 System Manufacturer

Table 1-17 System Manufacturer

Manufacturer	Phone Number
GE Medical Systems (China) Co., Ltd. No.19, Changjiang Road, Wuxi National Hi-Tech Dev. Zone, Jiangsu, P.R.China 214028	TEL: +86 510-85225888 FAX: +86 510-85226688

1-5-3 Factory Sites

Table 1-18 Factory Sites

Manufacturer	Phone Number
GE Medical Systems (China) Co., Ltd. No.19, Changjiang Road, Wuxi National Hi-Tech Dev. Zone, Jiangsu, P.R.China 214028	TEL: +86 510-85225888 FAX: +86 510-85226688
GE Ultrasound Korea: 65-1, Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, Korea 462-120	TEL: +82-31-740-6112 FAX: +82-31-740-6435
GE Medical Systems Ultrasound & Primary Care Diagnostics, LLC DBA GE Healthcare 9900 Innovation Drive Wauwatosa, WI 53226 U.S.A	TEL: (1) 800-437-1171 FAX: (1) 414-721-3865

Chapter 2
Site preparations

Section 2-1
Overview

2-1-1 Purpose of this chapter 2

This chapter provides the information required to plan and prepare for the installation of a LOGIQ e/ LOGIQ e Vet/LOGIQ i/Vivid e . Included are descriptions of the facility and electrical needs to be met by the purchaser of the unit.

2-1-2 Chapter Contents

Table 2-1 Contents in Chapter 2

Section	Description	Page Number
2-1	Overview	2-1
2-2	General Console Requirements	2-2
2-3	Facility Needs	2-6

Section 2-2
General Console Requirements

2-2-1 Console Environmental Requirements

Table 2-2 Environmental Requirements for LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Scanners

	Operational	Storage	Transport
Temperature	10 - 40 degree C	-5 - 50 degree C	-5 - 50 degree C
Humidity	30 - 75% non-condensing	10 - 90% non-condensing	10 - 90% non-condensing
Pressure	700 - 1060hPa	700 - 1060hPa	700 - 1060hPa
Temperatures in degree C, conversion to degree F =(degree C*(9/5) + 32)			

2-2-1-1 Lighting

Bright light is needed for system installation, updates and repairs. However, operator and patient comfort may be optimized if the room light is subdued and indirect. Therefore a combination lighting system (dim/bright) is recommended. Keep in mind that lighting controls and diameters can be a source of EMI which could degrade image quality. These controls should be selected to minimize possible interface.

2-2-2 Electrical Requirements

NOTE: GE Medical Systems requires a dedicated power and ground for the proper operation of its Ultrasound equipment. This dedicated power shall originate at the last distribution panel before the system.

Sites with a mains power system with defined Neutral and Live:

The dedicated line shall consist of one phase, a neutral (not shared with any other circuit), and a full size ground wire from the distribution panel to the Ultrasound outlet.

Sites with a mains power system without a defined Neutral:

The dedicated line shall consist of one phase (two lines), not shared with any other circuit, and a full size ground wire from the distribution panel to the Ultrasound outlet.

Please note that image artifacts can occur, if at any time within the facility, the ground from the main facility's incoming power source to the Ultrasound unit is only a conduit.

2-2-2-1 LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Power Requirements

Table 2-3 Electrical Specifications for LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

Adapter	Voltage	Power	Current	Frequency
TWADP100	100-240 VAC	130VA max.	1.3 A (max.)	50/ 60HZ

2-2-2-2 Inrush Current

Inrush current is not a factor to consider due to the inrush current limiting properties of the power supplies.

Table 2-4 Inrush Current

Voltage	Inrush Current	
	Console Only	Console with all peripherals
100V	0.38A	0.41A
240V	0.20A	0.21A

2-2-2-3 Site Circuit Breaker

It is recommended that the branch circuit breaker for the machine be readily accessible.

2-2-2-4 Site Power Outlets

A dedicated AC power outlet must be within reach of the unit without extension cords. Other adequate outlets for the external peripherals, medical and test equipment needed to support this unit must also be present within 1 m (3.2 ft.) of the unit. Electrical installation must meet all current local, state, and national electrical codes.

2-2-2-5 Unit Power Plug

If the unit arrives without a power plug, or with the wrong plug, you must contact your GE dealer or the installation engineer must supply what is locally required.

2-2-2-6 Power Stability Requirements

Voltage drop-out

Max 10 ms.

Power Transients

(All applications)

Less than 25% of nominal peak voltage for less than 1 millisecond for any type of transient, including line frequency, synchronous, asynchronous, or aperiodic transients.

2-2-3 EMI Limitations

Ultrasound machines are susceptible to Electromagnetic Interference (EMI) from radio frequencies, magnetic fields, and transient in the air wiring. They also generate EMI. The LOGIQ e/LOGIQ e Vet/ LOGIQ i/Vivid e complies with limits as stated on the EMC label. However there is no guarantee that interface will not occur in a particular installation.

Possible EMI sources should be identified before the unit is installed.

Electrical and electronic equipment may produce EMI unintentionally as the result of defect.

These sources include:

- medical lasers,
- scanners,
- cauterizing guns,
- computers,
- monitors,
- fans,
- gel warmers,
- microwave ovens,
- light dimmers,
- portable phones.

The presence of a broadcast station or broadcast van may also cause interference.

See Table 2-5 for EMI Prevention tips.

Table 2-5 EMI Prevention/abatement

EMI Rule	Details
Be aware of RF sources	Keep the unit at least 5 meters or 15 feet away from other EMI sources. Special shielding may be required to eliminate interference problems caused by high frequency, high powered radio or video broadcast signals.
Ground the unit	Poor grounding is the most likely reason a unit will have noisy images. Check grounding of the power cord and power outlet.
Replace all screws, RF gaskets, covers, cores	After you finish repairing or updating the system, replace all covers and tighten all screws. Any cable with an external connection requires a magnet wrap at each end. Install the shield over the front of card cage. Loose or missing covers or RF gaskets allow radio frequencies to interfere with the ultrasound signals.
Replace broken RF gaskets	If more than 20% or a pair of the fingers on an RF gasket are broken, replace the gasket. Do not turn on the unit until any loose metallic part is removed.
Do not place labels where RF gaskets touch metal	Never place a label where RF gaskets meet the unit. Otherwise, the gap created will permit RF leakage. Or, if a label has been found in such a position, move the label.
Use GE specified harnesses and peripherals	The interconnect cables are grounded and require ferrite beads and other shielding. Also, cable length, material, and routing are all important; do not change from what is specified.
Take care with cellular phones	Cellular phones may transmit a 5 V/m signal; that could cause image artifacts.
Properly dress peripheral cables	Do not allow cables to lie across the top of the card cage or hang out of the peripheral bays. Loop the excess length for peripheral cables inside the peripheral bays. Attach the monitor cables to the frame.

2-2-4 Scan Probe Environmental Requirements

Operation:10° to 40° C

Storage:-10° to 50° C

NOTE: The recommended storage temperature range of 6Tc-RS is between 0°C and 45°C.

*NOTE: Temperature in degrees C. Conversion to Degrees F = (Degrees C * (9/5) + 32).*

NOTICE SYSTEMS AND ELECTRONIC PROBES ARE DESIGNED FOR STORAGE TEMPERATURES OF -10 TO + 60 degrees C. WHEN EXPOSED TO LARGE TEMPERATURE VARIATIONS, THE PRODUCT SHOULD BE KEPT IN ROOM TEMPERATURE FOR 10 HOURS BEFORE USE.

Section 2-3
Facility Needs

2-3-1 Recommended Ultrasound Room Layout

2-3-1-1 Purchaser Responsibilities

The work and materials needed to prepare the site is the responsibility of the purchaser. Delay, confusion, and waste of manpower can be avoided by completing pre installation work before delivery. User the Pre Installation checklist to verify that all needed steps have been taken,
Purchaser reasonability includes:

- Procuring the materials required.
- Completing the preparations before delivery of the ultrasound system.
- Paying the costs for any alternations and modifications not specifically provided in the sales contract.

NOTE: All electrical installation that are preliminary to the positioning of the equipment at the site prepared for the equipment must be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, products involved (and the accompanying electrical installations) are highly sophisticated and special engineering competence is required. All electrical work on these product must comply with the requirements of applicable electrical codes. The purchaser of GE equipment must only utilize qualified personnel to perform electrical servicing on the equipment.

The desire to use a non-listed or customer provided product or to place an approved product further from the system than the interface kit allows presents challenges to the installation team. To avoid delays during installation, such variances should be made known to the individuals or group performing the installation at the earliest possible date (preferable prior to purchase).
The ultrasound suite must be clean prior to delivery of the machine. Carpet is not recommended because it collects dust and creates static. Potential sources of EMI (electromagnetic interference) should also be investigated before delivery. Dirt, static, and EMI can negatively impact system.

2-3-2 Required Features

NOTE: GE Medical Systems requires a dedicated power and ground for the proper operation of its Ultrasound equipment. This dedicated power shall originate at the last distribution panel before the system.

Sites with a mains power system with defined Neutral and Live:

The dedicated line shall consist of one phase, a neutral (not shared with any other circuit), and a full size ground wire from the distribution panel to the Ultrasound outlet.

Sites with a mains power system without a defined Neutral:

The dedicated line shall consist of one phase (two lines), not shared with any other circuit, and a full size ground wire from the distribution panel to the Ultrasound outlet.

Please note that image artifacts can occur, if at any time within the facility, the ground from the main facility's incoming power source to the Ultrasound unit is only a conduit.

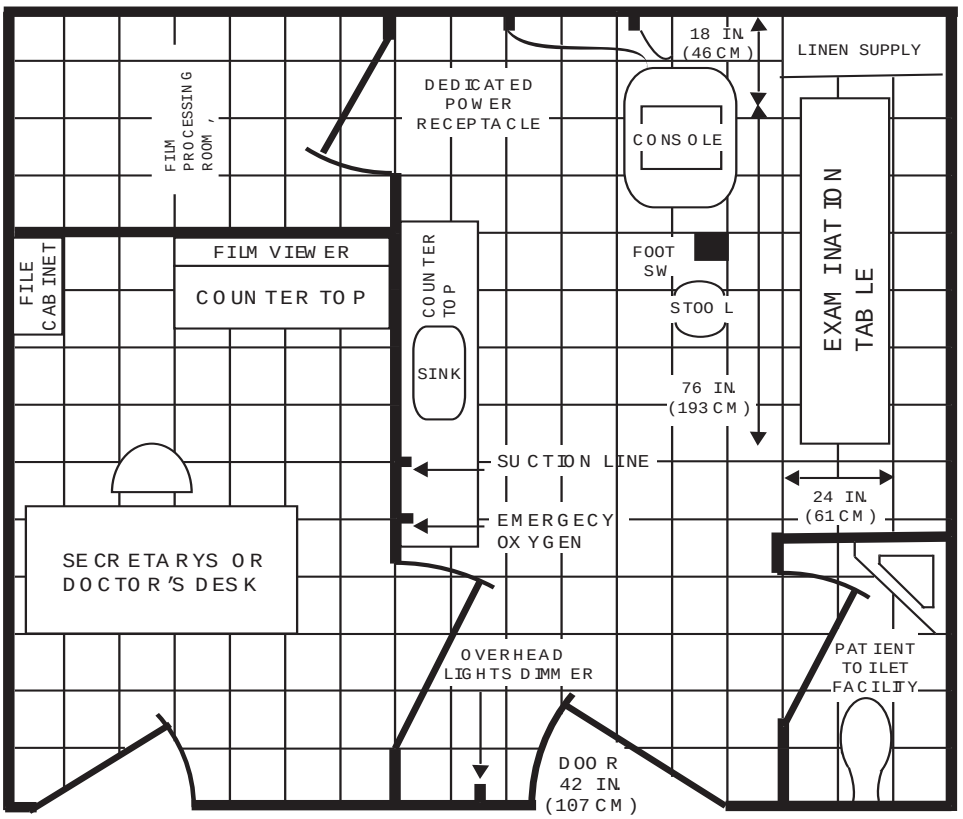
- Dedicated single branch power outlet of adequate amperage meeting all local and national codes which is located less than 2.5 m (8 ft.) from the unit's proposed location
- Door opening is at least 76 cm (30 in) wide
- Proposed location for unit is at least 0.2m (0.67 ft.) from the wall for cooling
- Power outlet and place for any external peripheral are within 2 m (6.5 ft.) of each other with peripheral within 1 m of the unit to connect cables.
- Power outlets for other medical equipment and gel warmer
- Power outlets for test equipment and modem within 1 m (3.2 ft.) of unit
- Clean and protected space to store transducers (in their cases or on a rack)
- Material to safely clean probes (done with a plastic container, never metal)

2-3-3 Desirable Features

- Door is at least 92 cm (3 ft.) wide
- Circuit breaker for dedicated power outlet is easily accessible
- Sink with hot and cold water
- Receptacle for bio–hazardous waste, like used probe sheaths
- Emergency oxygen supply
- Storage for linens and equipment
- Nearby waiting room, lavatory, and dressing room
- Dual level lighting (bright and dim)
- Lockable cabinet ordered by GE for its software and proprietary manuals.

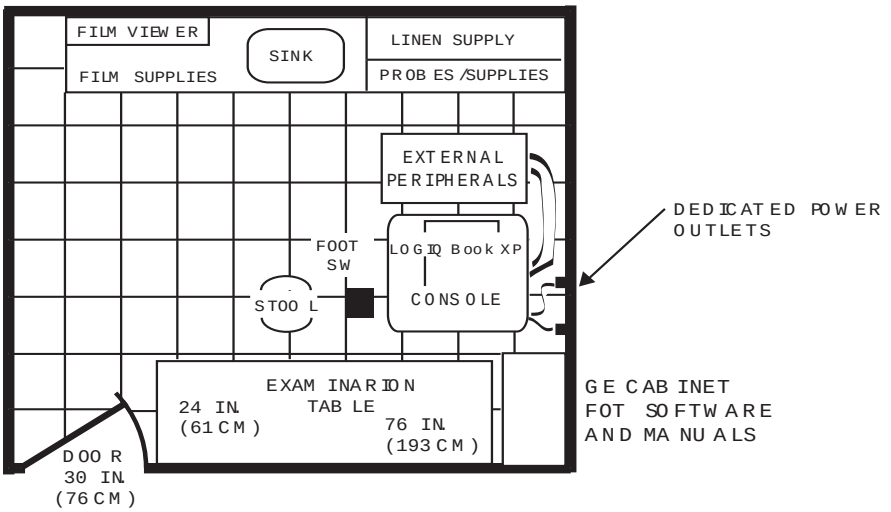
2-3-3-1 Recommended and Alternate Ultrasound Room Layout

Recommended standard floor plan and a minimal floor plan for ultrasound equipment:



A 14 by 17 foot Recommended Floor Plan

Scale: Each square equals one square foot



An 8 by 10 foot Minimal Floor Plan

Figure 2-1 RECOMMENDED ULTRASOUND ROOM LAYOUT

2-3-4 Networking Pre-installation Requirements

2-3-4-1 Stand Alone Scanner (without Network Connection)

None.

2-3-4-2 Scanner Connected to Hospital's Network

Supported networks:

Wireless LAN

2-3-4-3 Purpose of DICOM Network Function

DICOM services provide the operator with clinically useful features for moving images and patient information over a hospital network. Examples of DICOM services include the transfer of images to workstations for viewing or transferring images to remote printers. As an added benefit, transferring images in this manner frees up the on-board monitor and peripherals, enabling viewing to be done while scanning continues. With DICOM, images can be archived, stored, and retrieved faster, easier, and at a lower cost.

2-3-4-4 DICOM Option Pre-installation Requirements

To configure the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e to work with other network connections, the site's network administrator must provide some necessary information.

Information must include:

- A host name, local port number, AE Title, IP address and Net Mask for the LOGIQ e/LOGIQ e Vet/ LOGIQ i/Vivid e .
- The IP addresses for the default gateway and other routers at the site for ROUTING INFORMATION.
- The host name, IP address, port and AE Title for each device the site wants connected to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e for DICOM APPLICATION INFORMATION. A field for the make (manufacturer) and the revision of the device, is also included. This information may be useful for solving errors.

2-3-4-4 DICOM Option Pre-installation Requirements (cont'd)

.

LOGIQ e/
Host Name _____ **Local Port** _____ **IP Address** ___.___.___.___

AE Title _____ **Net Mask** ___.___.___.___

ROUTING INFORMATION

	Destination IP Addresses	GATEWAY IP Addresses
		Default ___.___.___.___
ROUTER1	___.___.___.___	___.___.___.___
ROUTER2	___.___.___.___	___.___.___.___
ROUTER3	___.___.___.___	___.___.___.___

DICOM APPLICATION INFORMATION

	NAME	MAKE/REVISION	AE TITLE	IP ADDRESSES	PORT
Store 1				___.___.___.___	
Store 2				___.___.___.___	
Store 3				___.___.___.___	
Store 4				___.___.___.___	
Store 5				___.___.___.___	
Store 6				___.___.___.___	
Worklist				___.___.___.___	
Storage Commit				___.___.___.___	
MPPS				___.___.___.___	

Figure 2-2 Worksheet for DICOM Network Information

Chapter 3
System Setup

Section 3-1
Overview

3-1-1 Purpose of Chapter 3

This chapter contains information needed to install the unit. Included are references to a procedure that describes how to receive and unpack the equipment and how to file a damage or loss claim.
How to prepare the facility and unit of the actual installation, and how to check and test the unit, probes, and external peripherals for electrical safety are included in this procedure. Also included in this section are guidelines for transporting the unit to a new site.

Table 3-1 Contents in Chapter 3

Section	Description	Page Number
3-1	Overview	3-1
3-2	Receiving and Unpacking the Equipment	3-4
3-3	Packing the Equipment	3-7
3-4	Preparing for Installation	3-8
3-5	Completing the Installation	3-9
3-6	System Configuration	3-12
3-7	Software/Option Configuration	3-27
3-8	Connectivity Installation Worksheet	3-28
3-9	Loading Base Image Software	3-29
3-10	Software Version check out	3-30
3-11	Paperwork	3-31

3-1-2 Average Installation Time

Table 3-2 Average Installation Time

Description	Average Installation Time	Comments
Unpacking the scanner	20 minutes	
Scanner wo/options	30 minutes	Dependent on the configuration that is required
DICOM Option	30 minutes	Dependent on the amount of configuration

The LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e installation and functional checkout will take approximately one hour. LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e consoles with optional equipment may take slightly longer.

3-1-3 Installation Warnings

8.) There are no operator serviceable components. To prevent shock, do not remove any covers or panels. Should problems or malfunctions occur, unplug the power cord. Only qualified service personnel should carry out servicing.

NOTE: For information regarding packing labels, refer to LABELS ON PACKAGE.

9.) After being transported, the unit may be very cold or hot. If this is the case, allow the unit to acclimate before you turn it on. It requires one hour for each 2.5×C increment it's temperature is below 10×C or above 40×C.

⚠ **DANGER Equipment damage possibility. Turning the system on without acclimation after arriving at site may cause the system to be damaged.**

Table 3-3 Time for Settlement

°C	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40
°F	140	131	122	113	104	95	86	77	68	59	50	41	32	23	14	5	-4	-13	-22	-31	-40
hrs	8	6	4	2	0	0	0	0	0	0	0	2	4	6	8	10	12	14	16	18	20

3-1-4 Safety Reminders

⚠ **DANGER WHEN USING ANY TEST INSTRUMENT THAT IS CAPABLE OF OPENING THE AC GROUND LINE (I.E., METER'S GROUND SWITCH IS OPEN), DON'T TOUCH THE UNIT!**

⚠ **CAUTION If the unit is very cold or hot, do not turn on its power until it has had a chance to acclimate to its operating environment.**

⚠ **DANGER To prevent electrical shock, connect the unit to a properly grounded power outlet. Do not use a three to two prong adapter. This defeats safety grounding.**

⚠ **DANGER Do not operate this unit unless all board covers are securely in place.**

⚠ **DANGER OPERATOR MANUAL(S)**
The User Manual(s) should be fully read and understood before operating the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e and kept near the unit for quick reference.

⚠ **DANGER ACOUSTIC OUTPUT HAZARD**
Although the ultrasound energy transmitted from the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e probe is within FDA limits, avoid unnecessary exposure. Ultrasound energy can produce heat and mechanical damage

Section 3-2
Receiving and Unpacking the Equipment

When a new system arrives, check that any components are not damaged and are not in short supply. If shipping damage or shortage occurs, contact the address shown in Chapter 1.

1.) Cut the four PLASTIC BANDs.

2.) Cut the adhesive tape and open top covers of paper carton.

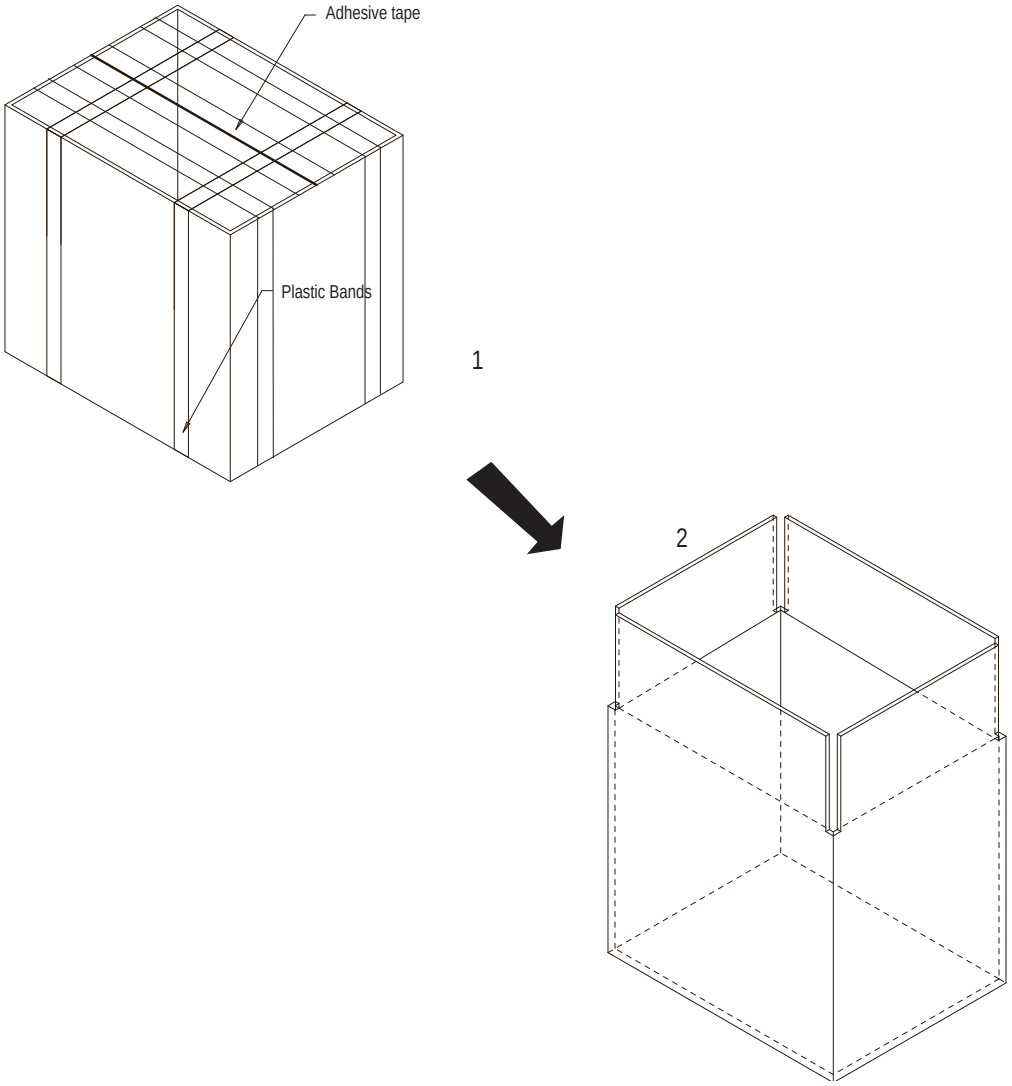


Figure 3-1 Open top covers of paper carton.

Section 3-2 Receiving and Unpacking the Equipment (cont'd)

3.) Take out the Paper pad.
4.) Take out console together with 2 interleavers from console package.
5.) Take out the interleavers beside Accessories Package.
6.) Take out Accessories Package.

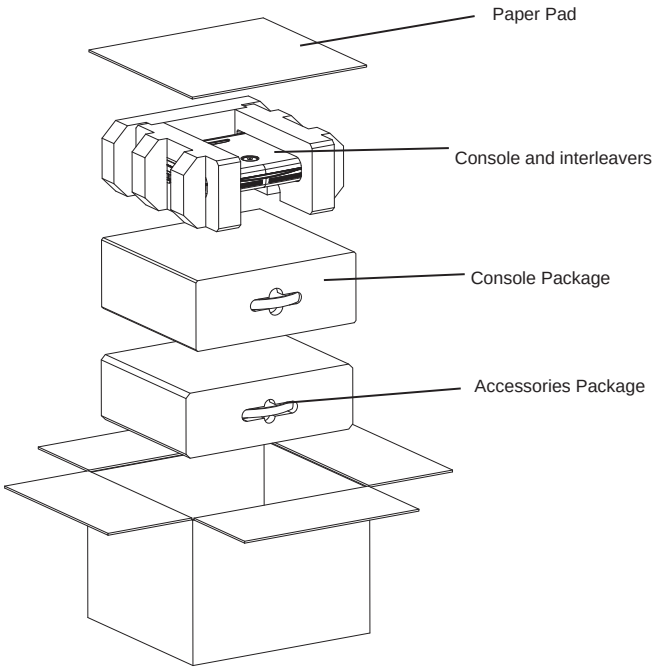


Figure 3-2 Unpacking the equipment

⚠ **CAUTION** **Do not lift the unit by the rubber band. Equipment damage may result.**

Section 3-2 Receiving and Unpacking the Equipment (cont'd)

7.) Remove 2 interleavers.

8.) Remove plastic bag.

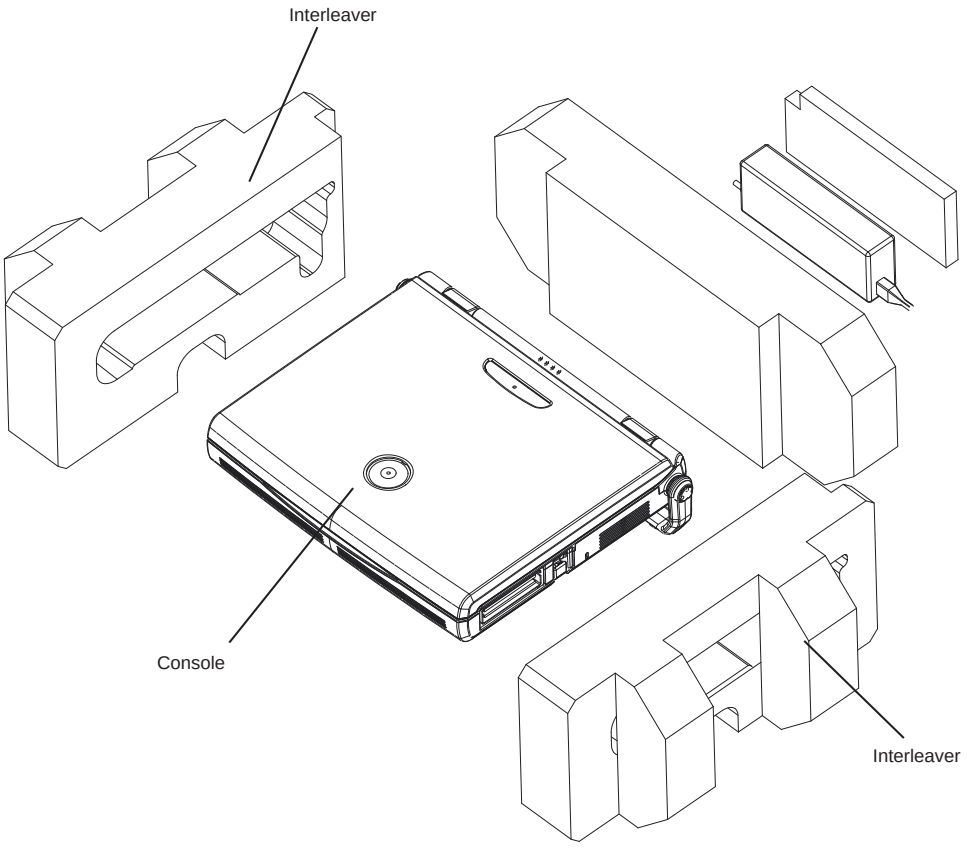


Figure 3-3 Removing interleavers and plastic bag

Section 3-2 Receiving and Unpacking the Equipment (cont'd)

NOTE: Check the shipping container for special instructions. Verify that the container is intact. In some cases a secondary container may be used. If so, ask the carrier for unpacking instructions.

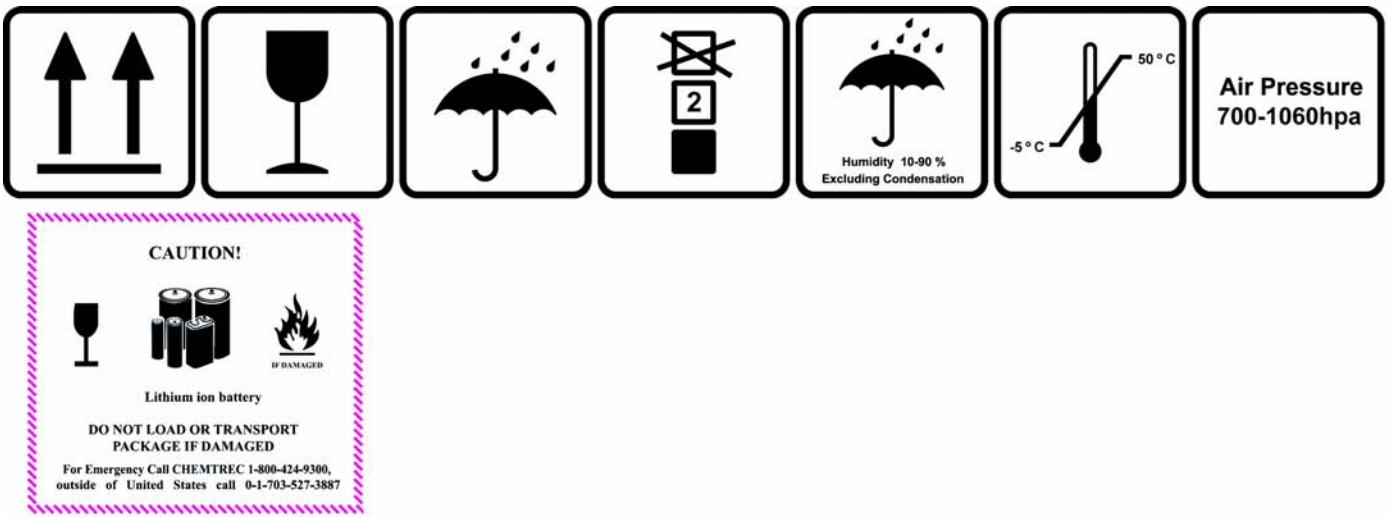


Figure 3-4 Labels on Package

CAUTION **Please carefully unpack the system, and do not dispose the package of LOGIQ e/LOGIQ e Vet/ LOGIQ i/Vivid e , so that it can be reused for service.**

3-2-1 Moving into Position

CAUTION **Do not lift the unit by the rubber band. Use handle to move system.**

CAUTION **Equipment Damage Possibility. Lifting the console by holding covers may damage the covers. Do not lift the console by holding any covers.**

In general, a single adult can move the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e . Before moving, store all loose parts in original accessory box or in back pack. Return probes to original box.

Section 3-3 Packing the Equipment

Please pack LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e in the reverse order of unpacking.

Section 3-4
Preparing for Installation

3-4-1 Verify Customer Order

Compare items received by the customer to that which is listed on the delivery order. Report any items that are missing, back ordered or damaged.

3-4-2 Physical Inspection

3-4-2-1 System Voltage Settings

- Verify that the scanner is set to the correct voltage. The Voltage settings for the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Scanner is found on a label located on the AC adapter.
- 220-240VAC(China); 100-120VAC(USA/Japan); 220-240VAC(Europe, Latin America).

⚠ **WARNING** ***Connecting a LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e scanner to the wrong voltage level will most likely destroy the scanner.***

3-4-3 EMI Protection

This Unit has been designed to minimize the effects of Electro Magnetic Interference (EMI). Many of the covers, shields, and screws are provided primarily to protect the system from image artifacts caused by this interference. For this reason, it is imperative that all covers and hardware are installed and secured before the unit is put into operation.

Section 3-5
Completing the Installation

3-5-1 Power On / Boot Up

NOTE: After turning off a system, wait at least ten seconds before turning it on again. The system may not be able to boot if power is recycled too quickly.

3-5-1-1 Scanner Power On

Lower the handle. Plug the AC adapter output connector into the system DC input port (located on the system's rear panel) with the arrow side upward. Plug the AC adapter power cord into a grounded, protective earth outlet.

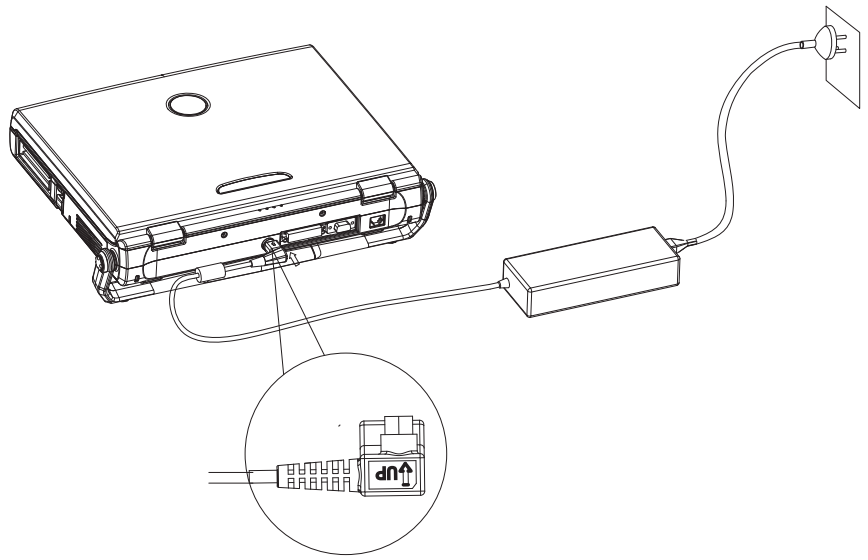


Figure 3-5 Connect AC adapter

When power is applied to the scanner, power is distributed to the Cooling Unit, Control Panel, LCD, Peripherals and the Back-end Processor.

3-5-1-2 Turn on the system

Press the ***Power On/Off*** switch at the front of the system once.

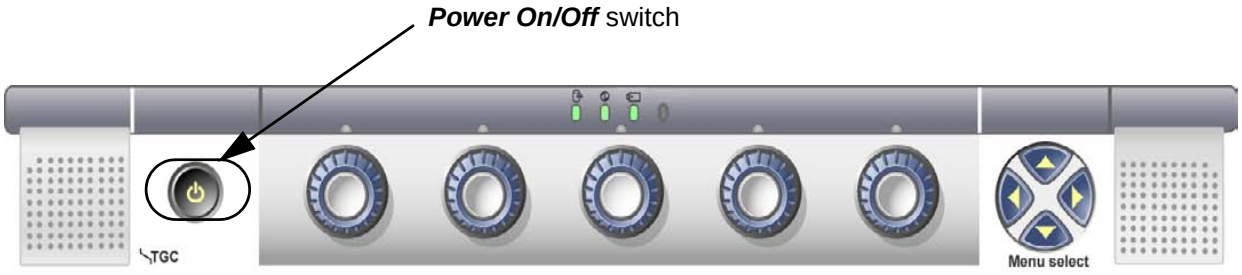


Figure 3-6 Power On/Off Switch

When the ***Power On/Off*** switch on the Control Panel is pressed once, the Back-end Processor starts and the software code is distributed to initiate the scanner.

No status messages are displayed during this process.

3-5-2 Power Off/ Shutdown

NOTE: After turning off a system, wait at least ten seconds before turning it on again. The system may not be able to boot if power is recycled too quickly.

3-5-2-1 Back-end Processor Power Down

To power down the system:

1.) Press the ***Power On/Off*** switch at the front of the system once.
2.) The System-Exit window is displayed.

Figure 3-7 System Exit Window

3.) Using the Trackball or Select key, select Shutdown.
4.) The shutdown process takes a few seconds and is complete when the power status LED is turned off.
5.) Disconnect the probes.Clean or disinfect all probes as necessary. Store them in their shipping cases to avoid damage.
6.) Close LCD cover.

3-5-2-2 Scanner Shutdown

Disconnect the Mains Power Cable if necessary. *For example:* Relocating the scanner.

3-5-3 Transducer Connection

1.) Carefully open the system LCD display, plug the probe connector into the probe port, then lock the probe latch upward.

NOTE: Please ensure that the probe latch is in an unlocked position before you connect the probe to the system.

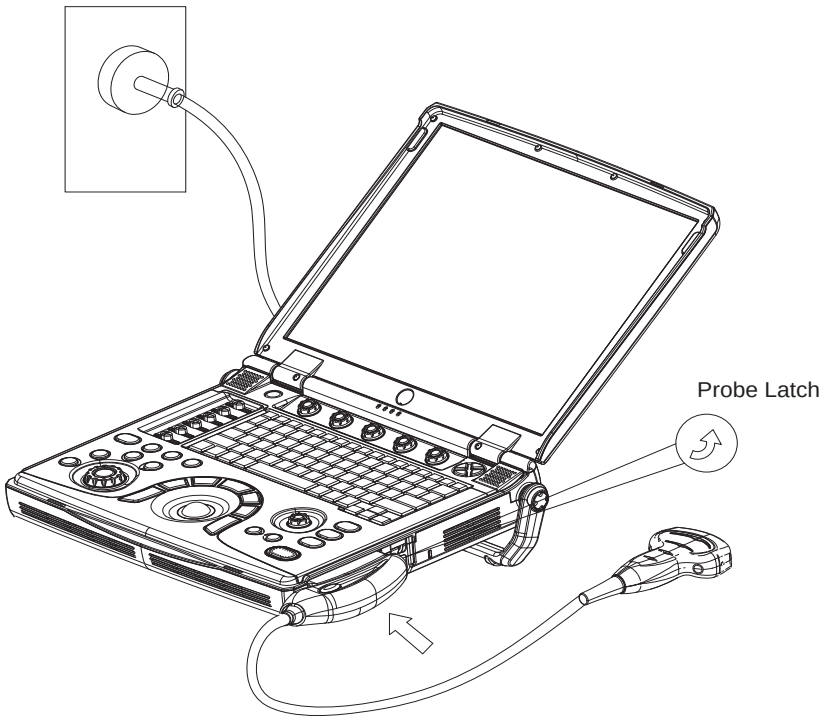


Figure 3-8 Connect the probe

NOTE: It is not necessary to turn OFF power to connect or disconnect a probe.

Section 3-6
System Configuration

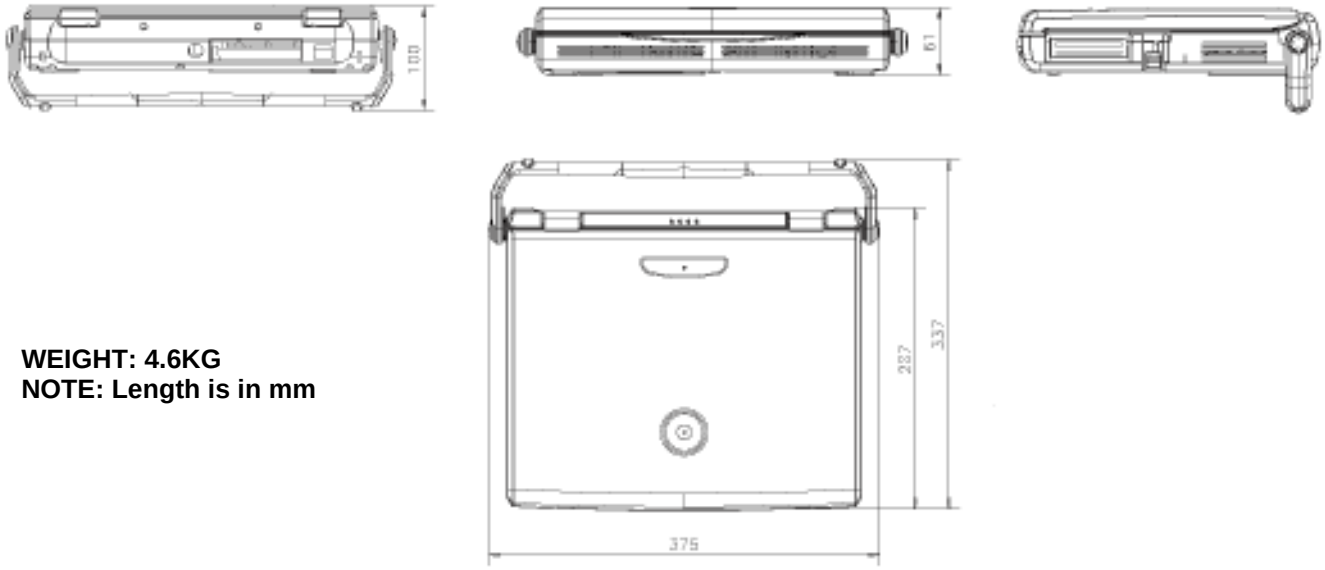
3-6-1 System Specifications

3-6-1-1 Physical Dimensions

The physical dimensions of the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e console are summarized in Figure 3-9 on page 3-12 .

Table 3-4 Physical Dimensions of LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

Height		Width		Depth		Unit
Console Only	Console with handle	Console Only	Console with handle	Console Only	Console with handle	Unit
61	100	340	375	287	337	mm
2.4	3.9	13.4	14.8	11.3	13.3	inches



WEIGHT: 4.6KG
NOTE: Length is in mm

Figure 3-9 Overall Dimensions

3-6-2 Electrical Specifications

Table 3-5 Electrical Specifications for LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

Adapter	Voltage	Tolerances	Current	Frequency
TWADP100	100-240 VAC	+/-10%	1.3A (max)	50/60Hz

3-6-3 Approved peripherals

Table 3-6 Approved on-board peripherals

Device	Manufacturer	Model	Interface	Remark
B/W Printer	SONY	UP-D897	USB	
Digital Color Printer	SONY	UP-D23MD	USB	
	SONY	UP-D25MD	USB	
HP Color Printer	HP	HP Officejet Pro K5400	USB	
	HP	HP Officejet Pro K8600	USB	
	HP	HP Deskjet 470	USB	
DVD-RW	LITEON	LITEON DX-20A4P	USB	
	LITEON	LITEON Model eHAU 120	USB	
	LITEON	LITEON Model eHAU 324	USB	
Wireless Lan Adapter	NetGear	WN111V2	USB	
	NetGear	WG111V3	USB	
	Linksys	Linksys WUSB54G	USB	
3-pedal footswitch	Steute	MKF 2-MED GP26	USB	
1-pedal footswitch	Whanam	FSU2001	USB	
1-pedal footswitch	Whanam	FSU-1000	USB	
USB Memory	SanDisk	CRUZER 2G	USB	
	SanDisk	CRUZER 4G	USB	
	SanDisk	CRUZER 4G with U3 Application	USB	Only supported by LOGIQ e R6.x.x and LOGIQ e R7.x.x.
USB HUB	Shenzhen Gaojian	HE 702A	USB	
	Shenzhen Gaojian	HE420GE	USB	
ECG	NORAV	ECG-USB1	USB	
USB HDD	Seagate	USB HDD 80G	USB	
	Seagate	USB HDD 250G	USB	
	Seagate	USB HDD 500G	USB	
DVD-Recorder	Panasonic	MD-800E MD-800U	USB	Not supported by LOGIQ e R4.x.x, LOGIQ e R6.x.x, Vivid e R4.x.x, LOGIQ i R4.x.x
Video Transfer	Pinnacle	Pinnacle Video Transfer - 8230-10022-11	USB	Not supported by LOGIQ e R5.0.x, LOGIQ e Vet R5.0.x, Vivid e R5.0.x, LOGIQ i R5.0.x
BarCode Reader*	Handheld	Handheld 3800G	USB	Only supported by LOGIQ e R5.2.x, R6.x.x, R7.x.x, LOGIQ e Vet 6.x.x
	Handheld	Handheld 4600G	USB	

NOTE: For detailed installation information and connection procedures, please refer to Peripheral Installation manual.

NOTE: BarCode Reader is supported by LOGIQ e Software version R5.2.x, R6.x.x only.*

3-6-4 Connecting Cables

WARNING Equipment damage possibility. Be sure to use the following recommended connecting cables to connect recording devices and a network with LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e console.

Table 3-7 List of Connecting Cables

Name	Part No.	Figure	NOTE
USB Cable	5122305		For USB Printer & USB DVD-RW

3-6-5 Peripherals/Accessories Connector Panel

LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e peripherals and accessories can be properly connected using the side connector panel.

3-6-5-1 Rear Panel Connector

Located on the rear panel are video input and output connectors, power connector and ethernet port.

Figure 3-10 Rear Connector Panel

1.) Port for DC input (AC Adapter)
2.) Docking Connector
3.) SVGA Output
4.) Ethernet port

3-6-5-2 Left Panel Connector

Located on the left side panel are two USB Ports for control connections for printer, service tools and earphone port.

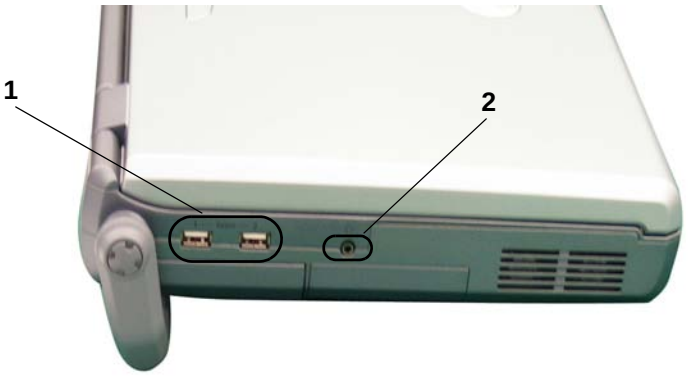


Figure 3-11 Left Side Panel

1.) Two interchangeable USB Port (Digital Printers, DVD-RW and/or FootSwitch, etc)
2.) Earphone Port.

NOTE: Each outer (case) ground line of peripheral/accessory connectors are protectively grounded. Signal ground lines are not isolated.

3-6-5-3 This section indicates the pin assignment for each connector.

1. Pin Assignment of DC input

Connector: 4 Pin, Female

Table 3-8 Pin Assignments of DC input

Pin No.	Signal	Pin No.	Signal
1	+20V	3	GND
2	+20V	4	GND

2. Pin Assignment of USB

Table 3-9 Pin assignment of USB1

Pin No.	Signal	Pin No.	Signal
1	+5VDC	3	DATA+
2	DATA-	4	GND

Table 3-10 Pin assignment of USB2

Pin No.	Signal	Pin No.	Signal
1	+5VDC	3	DATA+
2	DATA-	4	GND

3. Pin assignment of RS232C for external VGA

Connector: D-SUB, 15Pin, Female

Table 3-11 Pin Assignments of RS232C for External VGA

Pin No.	Signal	Pin No.	Signal
1	RED	9	N/A
2	GREEN	10	SGND
3	BLUE	11	N/A
4	N/A	12	N/A
5	GND	13	HSYNC
6	RGND	14	VSYNC
7	GGND	15	N/A
8	BGND	16	

3-6-5-4 Connect peripherals

A.) Connect B/W printer to the system.

B/W Printer can be properly connected using USB Port1 or USB Port 2 (Figure 3-12 on page 3-17).

Figure 3-12 Connect B/W printer to the system

B.) Connect UP-D23MD color printer to the system.

UP-D23MD Color Printer can be properly connected using USB Port1 or USB Port 2 (Figure 3-13 on page 3-17).

Figure 3-13 Connect digital color printer to the system

NOTICE HP Deskjet 470 /HP Officejet Pro K5400 Color Printer must connect with PIT (Printer Isolation Transformer) when being used.

3-6-5-4 Connect peripherals (cont'd)

C.) Connect DVD-RW to the system.
DVD-RW can be properly connected using USB Port1 or USB Port2 (Figure 3-14 on page 3-18).

Figure 3-14 Connect DVD-RW to the system

⚠ **CAUTION DO NOT connect DVD-RW to the system while scanning.**

LITEON DVD-RW drive recommended media list

Media issues are common throughout the DVD-RW drive industry. Because DVD media vendors often change disc suppliers, quality levels may change due to manufacturing differences. This means that you may encounter DVD/CD creation problems with media that may have worked successfully before. Overall system configuration and other factors may also affect the success of creating a DVD/CD.

The following media types have been tested. LITEON highly recommends that you use the media types on this list when creating your DVDs/CDs.

Not all brands of media have been tested and, therefore, you may encounter success with other brands not listed. This list will be updated as other media is tested and approved.

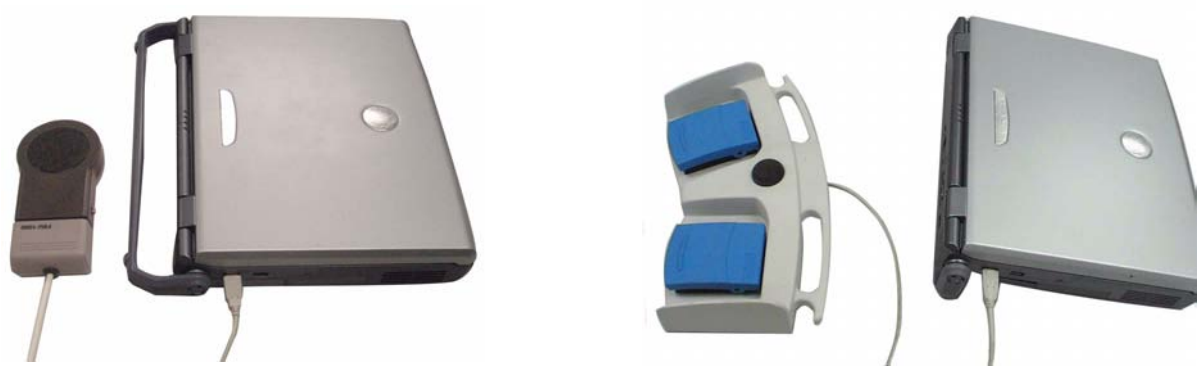
Table 3-12 LITEON DVD-RW drive recommended media list

Brand Name	Type
SONY	DVD-R
SONY	CD-R
SONY	DVD-RW
Mitsubishi	CD-R
Mitsubishi	CD-RW
Mitsubishi	DVD-R
Mitsubishi	DVD-RW
JVC	DVD-R
MBI	CD-R
MBI	DVD-R
Taiyo Yuden	CD-R
Taiyo Yuden	DVD-R

3-6-5-4 Connect peripherals (cont'd)

D.) Connect FootSwitch to the system.

FootSwitch can be properly connected using USB Port1 or USB Port2.



1-pedal footswitch

3-pedal footswitch

Figure 3-15 Connect Foot Switch to the system

E.) Connect Wireless LAN Adapter to the system.

Wireless LAN Adapter can be properly connected using USB port.

Figure 3-16 Connect Wireless LAN Adapter to the system

F.) Connect the CRT to the system.

CRT can be properly connected using the SVGA output.

3-6-5-4 Connect peripherals (cont'd)

G.) Connect the USB Memory to the system. The USB Memory can be properly connected using USB port 1 or 2.

Figure 3-17 USB Memory Connection

H.) Connect the ECG to the system. ECG can be properly connected using USB port 1 or 2.

Figure 3-18 ECG

3-6-5-4 Connect peripherals (cont'd)

I.) Connect the USB HDD to the system. The USB Harddisk can be properly connected using USB port 1 and 2.

Figure 3-19 Emergency Disk Connection

J.) Connect the BarCode Reader to the system, the BarCode Reader can be properly connected via USB port 1 or 2.

Figure 3-20 BarCode Reader Connection

3-6-5-4 Connect peripherals (cont'd)

K.) Connect the Sandisk U3 USB Flash Drive to the system. The Sandisk U3 USB Flash Drive can be properly connected using USB port 1 and 2.

Figure 3-21 Sandisk U3 USB Flash Drive Connection

NOTE: The Password of the Sandisk U3 USB Flash Drive is Predefined.

NOTE: The Sandisk U3 USB Flash Drive is only available on LOGIQ e R6.x.x and LOGIQ e R7.x.x.

Connect the security enabled Sandisk U3 USB Flash Drive into the system, input the password in the pop-up dialog. Click **OK** to login, click **Cancel to** cancel.

Login To U3 USB Drive
Please enter password of U3 USB drive I:\
Hint : bt1234
You have 5 attempts remaining before device is permanently locked.
OK
Cancel

Figure 3-22 Input the password

The Sandisk U3 USB Flash Drive can be used if the right password is entered. An error message will display if the wrong password is entered.

3-6-5-4 Connect peripherals (cont'd)

Figure 3-23 Wrong password error

Click **OK**, input the password again.

The Sandisk U3 USB Flash Drive will be locked if reaching the maximum number of failed password attempts.

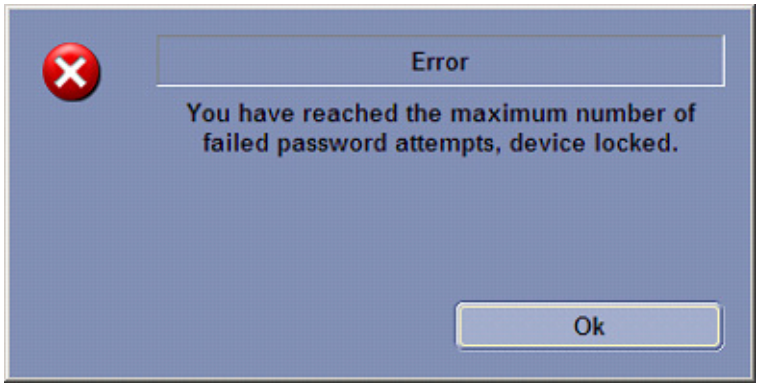


Figure 3-24 Sandisk U3 USB Flash Drive locked

NOTE: Please refer to the operation manual of each peripheral for information needed by the user to operate the system safely.

For detailed installation information, please refer to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Peripheral Installation Instruction manual.

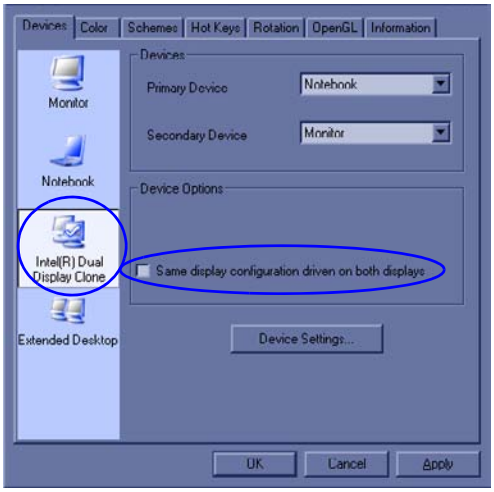
3-6-5-4 Connect peripherals (cont'd)

L.) Connect the external monitor to the system. The monitor can be properly connected using the VGA port.

Figure 3-25 VGA Connection

Press Ctrl+Alt+V on the keyboard, a dialog box appears.

For LOGIQ e R5.x.x, R6.x.x, R7.x.x, LOGIQ i R5.x.x, Vivid e R5.x.x/R6.x.x



For LOGIQ e R4.x.x, LOGIQ i R4.x.x, Vivid e R4.x.x

Figure 3-26 Graphics Controller Properties

Select Intel(R) Dual Display Clone; check the Same display configuration driver on both display box and select OK.

NOTE: Please refer to the operation manual of each peripheral for information needed by the user to operate the system safely.

NOTE: For LOGIQ e R5.2.x, R6.x.x, R7.x.x, the default set is dual, it will not pop up Figure 3-26.

For detailed installation information, please refer to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Peripheral Installation manual.

3-6-6 Available Probes

See in specification in the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e User Reference Manual for Probes and intended use.

For LOGIQ e R4.0.x, the system supports 4C-RS, E8C-RS, 8C-RS, i12L-RS, 8L-RS, 3S-RS, 12L-RS Probes.

For LOGIQ e R5.0.x, the system supports 4C-RS, E8C-RS, 8C-RS, i12L-RS, 8L-RS, 3S-RS, 12L-RS, i/t739-RS, 9L-RS Probes.

For LOGIQ e R5.2.x, the system supports 4C-RS, E8C-RS, 8C-RS, i12L-RS, 8L-RS, 3S-RS, 12L-RS, i/t739-RS, 9L-RS, 16L-RS Probes.

For LOGIQ e R6.x.x, the system supports 4C-RS, E8C-RS, 8C-RS, i12L-RS, 8L-RS, 3S-RS, 12L-RS, i/t739-RS, 9L-RS, 16L-RS, 6Tc-RS, 6S-RS Probes.

For LOGIQ e R7.x.x, the system supports 4C-RS, E8C-RS, 8C-RS, i12L-RS, 8L-RS, 3S-RS, 12L-RS, i/t739-RS, 9L-RS, 16L-RS, 6Tc-RS, 6S-RS, L8-18i-RS,P2D Probes.

For LOGIQ i R4.x.x, the system supports 4C-RS, E8C-RS, 8C-RS, i12L-RS, 8L-RS, 3S-RS, 12L-RS Probes.

For LOGIQ i R5.x.x, the system supports 4C-RS, E8C-RS, 8C-RS, i12L-RS, 8L-RS, 3S-RS, 6S-RS, 12L-RS, i/t739-RS, P2D, 9L-RS Probes.

For Vivid e R4.x.x, the system supports 4C-RS, i12L-RS, 8L-RS, 3S-RS Probes.

For Vivid e R5.0.x, the system supports 4C-RS, i12L-RS, 8L-RS, 3S-RS, 8C-RS, 9L-RS, P2D Probes.

For Vivid e R5.2.x, the system supports 4C-RS, 8C-RS, E8C-RS, 8L-RS, 9L-RS, 12L-RS, i12L-RS, 3S-RS, 6S-RS, P2D Probes.

For Vivid e R6.x.x, the system supports 4C-RS, 8C-RS, E8C-RS, 8L-RS, 9L-RS, 12L-RS, i12L-RS, 3S-RS, 6S-RS, P2D, 6Tc-RS Probes.

For LOGIQ e Vet R5.0.x, the system supports 4C-RS Vet, E8C-RS Vet, 8C-RS Vet, i12L-RS Vet, 8L-RS Vet, 3S-RS Vet, 12L-RS Vet, 9L-RS Vet, i739-RS LC, 6S Vet-RS

For LOGIQ e Vet R5.2.x, the system supports 4C-RS Vet, E8C-RS Vet, 8C-RS Vet, i12L-RS Vet, 8L-RS Vet, 3S-RS Vet, 12L-RS Vet, 9L-RS Vet

For LOGIQ e Vet R6.x.x, the system supports 4C-RS Vet, E8C-RS Vet, 8C-RS Vet, i12L-RS Vet, 8L-RS Vet, 3S-RS Vet, 12L-RS Vet, 9L-RS Vet, 6S Vet-RS, i739-RS-LC, 6Tc-RS Vet

NOTE: 16L-RS is not available in China.

3-6-6 Available Probes (cont'd)

Table 3-13 List of Probes for LOGIQ e/LOGIQ i/Vivid e

Probe Name	Material of Headshell	Area of Using	TYPE	Catalog Number	Part Number
4C-RS	NORYL	GENERAL PURPOSE	CONVEX	H4000SR	5131629
E8C-RS	VALOX	TRANSVAGINAL TRANSRECTAL	MICRO-CONVEX	H40402LN	2290777
8C-RS	VALOX	VETERINARY PEDIATRIC NEONATAL	MICRO-CONVEX	H40402LS	2354971
i12L-RS	ABS (GE)	INTRAOPERATIVE SMALL PARTS VASCULAR PEDIATRICS	LINEAR	H40402LW	2377942
8L-RS	VALOX	SMALL PARTS PERIPHERAL VASCULAR	LINEAR	H40402LT	2376127
3S-RS	VALOX	CARDIOLOGY TRANSVAGINAL ABDOMEN	SECTOR	H4000PD	2355686
12L-RS	NORYL	SMALL PARTS PERIPHERAL VASCULAR	LINEAR	H40402LY	5154514
9L-RS	VALOX	SMALL PATS VASCULAR	LINEAR	H40442LL	5213143
i739-RS	VALOX	INTRAOPERATIVE	LINEAR	H40402LJ	2404995
t739-RS	VALOX	INTRAOPERATIVE	LINEAR	H40412LP	2404999
P2D		CARDIOLOGY	Non-Imaging CW	H45551CA	KE100003
6S-RS	VALOX	CARDIOLOGY PEDIATRICS	SECTOR	H45021RP	47236956
16L-RS	VALOX	SMALL PARTS PERIPHERAL VASCULAR	LINEAR	H40452LJ	5317271
6Tc-RS	VALOX	TRANSESOPHAGEAL FOR ADULT	SECTOR	H45551ZE	KN100104

NOTE: 16L-RS is not available in China.

3-6-6 Available Probes (cont'd)

Table 3-14 List of Probes for LOGIQ e Vet

Probe Name	Material of Headshell	Area of Using	TYPE	Catalog Number	Part Number
4C-RS Vet	NORYL	GENERAL PURPOSE	CONVEX	H40442LY	5198378
E8C-RS Vet	VALOX	TRANSVAGINAL TRANSRECTAL	MICRO-CONVEX	H41562LL	5134643
8C-RS Vet	VALOX	VETERINARY PEDIATRIC NEONATAL	MICRO-CONVEX	H41562LK	5134642
i12L-RS Vet	ABS (GE)	INTRAOPERATIVE SMALL PARTS VASCULAR PEDIATRICS	LINEAR	H41562LN	5134645
8L-RS Vet	VALOX	SMALL PARTS PERIPHERAL VASCULAR	LINEAR	H41562LM	5134644
3S-RS Vet	VALOX	CARDIOLOGY TRANSVAGINAL ABDOMEN	SECTOR	H41562LR	5134647
12L-RS Vet	NORYL	SMALL PARTS PERIPHERAL VASCULAR	LINEAR	H40442LZ	5212304
9L-RS Vet	VALOX	SMALL PARTS VASCULAR	LINEAR	H40442LW	5220453
i739-RS-LC	VALOX	INTRAOPERATIVE	LINEAR	H41482LS	5136420
6SVet-RS	VALOX	CARDIOLOGY PEDIATRICS	SECTOR	H40452L	5198571
6Tc-RS Vet	VALOX	TRANSVAGINAL FOR ADULT	SECTOR	H48922LB	5430790

NOTE: i739-RS-LC , 6SVet-RS and 6Tc-RS Vet probes are only availble for R6.x.x.

Section 3-7
Software/Option Configuration

Refer to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Basic User Manual, Chapter 16, Customizing Your System for information on configuring items like Hospital, Department, Language, Units (of measure), Date, Time and Date Format.

For information on configuring Software Options, Refer to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Basic User Manual, Chapter 16, Customizing Your System.

For information on configuring DICOM Connectivity, Refer to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Basic User Manual, Chapter 16, Customizing Your System.

Section 3-8
Connectivity Installation Worksheet

Site System Information

Site:

Dept:

LOGIQ SN: Type:

Floor:

Room:

REV:

Comments:

CONTACT INFORMATION

Name	Title	Phone	E-Mail Address

TCP/IP Settings

Name - AE Title:

IP Settings

IP Address:

Subnet Mask:

Default Gateway:

Remote Archive Setup

Remote Archive IP:

Remote Archive Name:

Services (Destination Devices)

	Device Type	Manufacturer	Name	IP Address	Port	AE Title
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Section 3-9
Loading Base Image Software

This information has been moved, please refer to:

Section 8-3 "Loading Base Image Software" on page 8-4

Section 3-10Software Version check out

3-10-1 Functional Check-out

1.) Power on LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e scanner and wait until system booting to main screen.

2.) Press Utility/Config key on control panel.

3.) Choose the About button on the right.

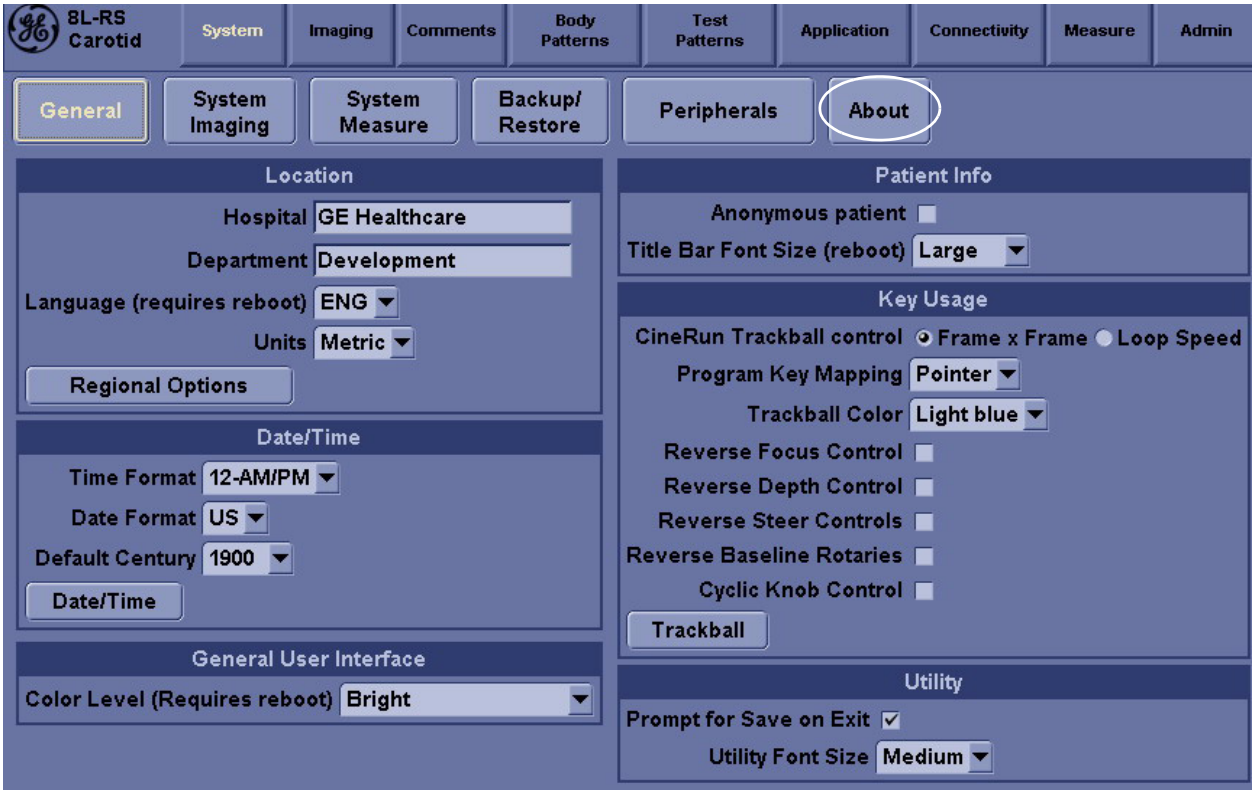


Figure 3-27 About

4.) Check whether "Software version" is the right version for use.

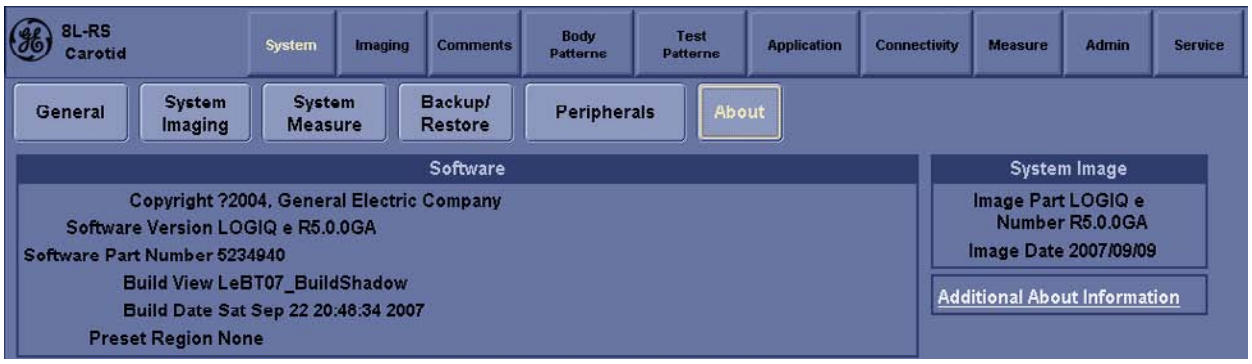


Figure 3-28 Software version

Section 3-11
Paperwork

NOTE: During and after installation, the documentation (i.e. User Manuals, Installation Manuals...) for the peripheral units must be kept as part of the original system documentation. This will ensure that all relevant safety and user information is available during the operation and service of the complete system.

3-11-1 Product Locator Installation

NOTE: The Product Locator Installation Card shown may not be same as the provided Product Locator card.

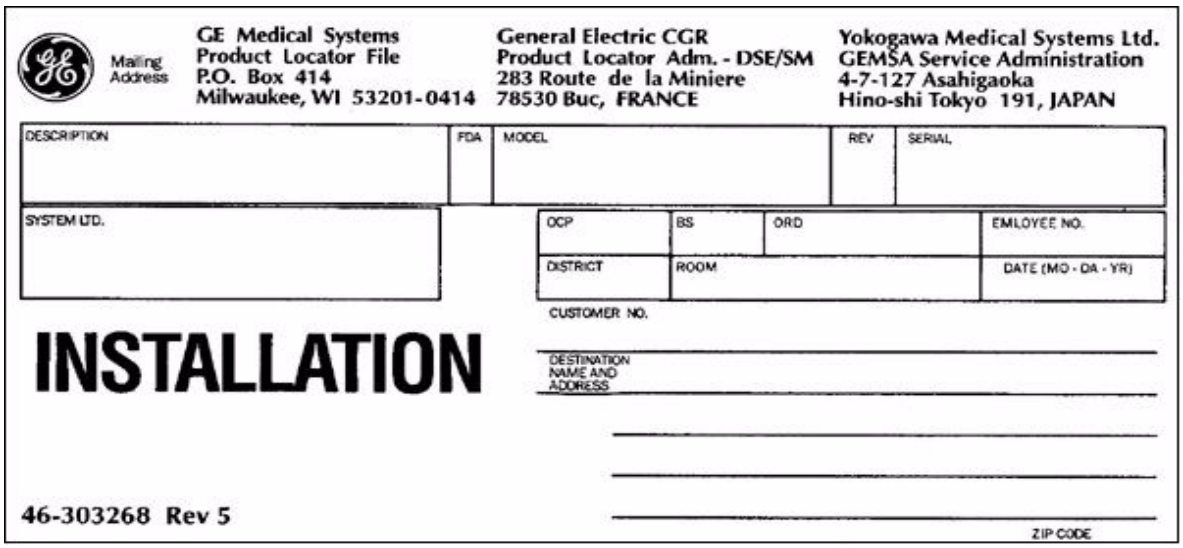


Figure 3-29 Product Locator Installation Card

3-11-2 User Manual(s)

User Check that the correct User Manual(s) for the system and software revision, is included with the installation. Specific language versions of the User Manual may also be available. Check with your GE Sales Representative for availability.

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Chapter 4
Functional Checks

Section 4-1
Overview

4-1-1 Purpose for Chapter 4

This chapter provides procedures for quickly checking major functions of the LOGIQ e/LOGIQ e Vet/ LOGIQ i/Vivid e console, diagnostics by using the built-in service software, and power supply adjustments.

Table 4-1 Contents in chapter 4

Section	Description	Page Number
4-1	Overview	4-1
4-2	Required Equipment	4-1
4-3	General Procedure	4-2
4-4	Software Configuration Checks	4-37
4-5	Peripheral Checks	4-37

Section 4-2
Required Equipment

To perform these tests, you'll need any of the sector, linear, or convex transducers.

(normally you should check all the transducers used on the system)

Section 4-3
General Procedure

CAUTION **SYSTEM REQUIRES ALL COVERS**
Operate this unit only when all board covers and frame panels are securely in place. The covers are required for safe operation, good system performance and cooling purposes.

NOTICE Lockout/Tagout Requirements (For USA only)

Follow OSHA Lockout/Tagout requirements by ensuring you are in total control of the Power Cable on the system.

4-3-1 Power On/Boot Up

After AC/DC is connected correctly to the scanner, the power is applied to the scanner. When the Control panel ***Power On/Off*** key is pressed once, the System starts.

4-3-1-1 Scanner Power On

Lower the handle. Plug the AC adapter output connector into the system DC input port (located on the system's rear panel) with the arrow side upward. Plug the AC adapter power cord into a grounded, protective earth outlet.

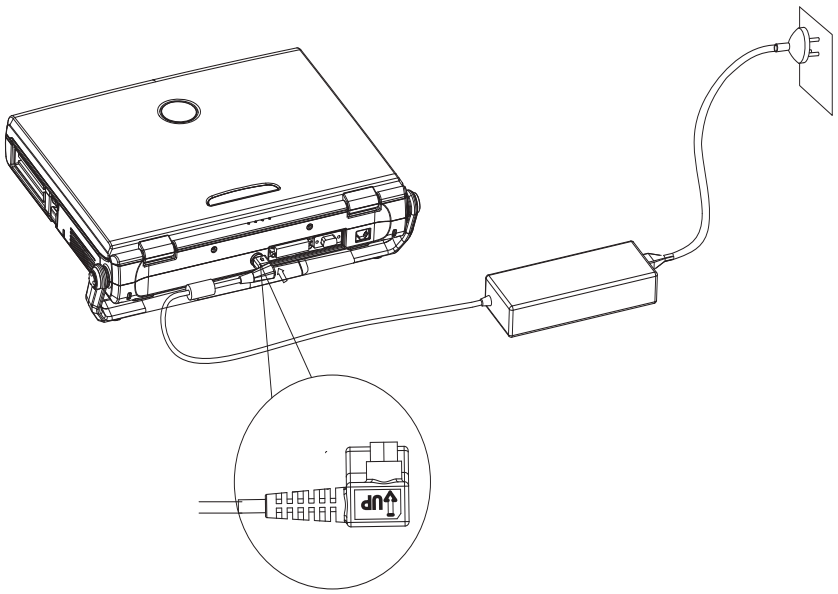

Figure 4-30 connect AC adapter

4-3-1-1 Scanner Power On (cont'd)

When power is applied to the scanner, power is distributed to the Cooling Unit, Control Panel, LCD, Peripherals and the Back-end Processor.

4-3-1-2 Turn on the system

Press the ***Power On/Off*** switch at the front of the system once.

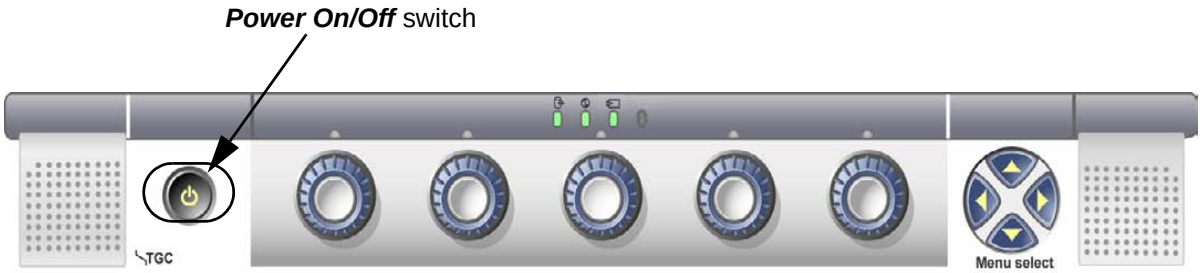

Figure 4-31 Power On/Off Switch

When the ***Power On/Off*** switch on the Control Panel is pressed once, the Back-end Processor starts and the software code is distributed to initiate the scanner.

No status messages are displayed during this process.

4-3-2 Power Off/ Shutdown

NOTE: After turning off a system, wait at least ten seconds before turning it on again. The system may not be able to boot if power is recycled too quickly.

4-3-2-1 Back-end Processor Power Down

To power down the system:

1.) Press the ***Power On/Off*** switch at the front of the system once.
2.) The System-Exit window is displayed.

Figure 4-1 System Exit Window

3.) Using the Trackball or Select key, select Shutdown.

4-3-2-1 Back-end Processor Power Down (cont'd)

4.) The shutdown process takes 15 seconds and the power off sequence is complete when the power status LED is turned off.

5.) Disconnect the probes.Clean or disinfect all probes as necessary. Store them in their shipping cases to avoid damage.

6.) Close LCD cover.

4-3-2-2 Scanner Shutdown

Disconnect the Mains Power Cable is necessary. *For example:* Relocating the scanner.

⚠ **CAUTION** **DO NOT unplug and/or transport the unit until after the power off sequence has been completed. Failure to do so may result in corrupted patient files.**

4-3-2-3 Full Maintenance Reboot

Full Maintenance Reboot will fully restart the whole system for performance improvement.

NOTE: It's recommended to do Full Maintenance Reboot at least daily or when system starts to slow down or lag in its reaction.

1.) Press the ***Power On/Off*** switch at the front of the system once.

2.) Click "Full Maintenance Reboot".

3.) Full Maintenance Reboot dialog is displayed.

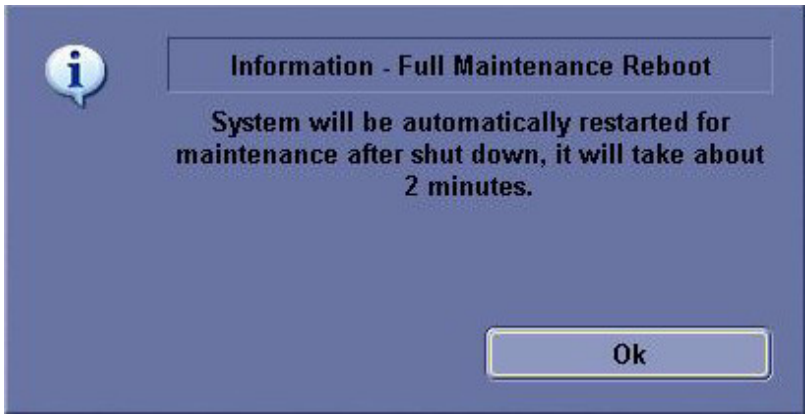
Information - Full Maintenance Reboot
System will be automatically restarted for maintenance after shut down, it will take about 2 minutes.
Ok

Figure 4-2 "Full Maintenance Reboot" dialog

4-3-2-4 Exit (only activated for LOGIQ e R6.0.2)

Exit will reboot application.

1.) Press the ***Power On/Off*** switch at the front of the system once.

2.) Click "Exit".

3.) The application will reboot.

4-3-3 Archiving and Loading Presets

NOTE: Always save presets before any software reload. This ensures the presets loaded after the software reload are as up–to–date as possible.

All user presets except changes to Summary, Anatomy, and Biometry pages, can be saved on an DVD-R disk (or USB memory device) for reloading on the system.

NOTICE Presets should NOT be saved on the same DVD-R disk (or USB memory device) as images. The Archive Menu lists the images but does NOT list the presets stored on a DVD-R disk (or USB memory device).

4-3-3-1 Archiving Presets to an DVD-R Disk (or USB memory device)

1.) Insert an empty (blank) DVD-R disk into the DVD-RW.

2.) Access to the Utility/Config Menu, and select System. The Backup sheet will be shown on the LCD display.

Figure 4-3 Backup Sheet

3.) Select the item to Backup/Restore.

4.) Enter backup destination or browse through the disk to locate the destination.

5.) Select Backup now. The backup status for each item is displayed on the Result column.

4-3-3-2 Loading Presets from an DVD-R disk (or USB memory device)

1.) Insert the DVD-R disk with the archived Presets into the DVD-RW.
2.) Access to the Utility/Config Menu, and select System. The Restore sheet will be shown on the LCD display. (see Figure 4-3 on page 4-5)
3.) Select the item to restore either from Resource Files.
4.) Enter restore destination or browse through the disk to locate the destination.
5.) Select Restore. The restore status for each item is displayed on the Result column.

4-3-4 Adjusting the Display Monitor

Please refer to Section 6-2 "Monitor Adjustments" on page 6-2.

4-3-5 Lockout/Tagout (LOTO) requirements

Follow OSHA Lockout/Tagout requirements (USA) or local Lockout/Tagout requirements by ensuring you are in total control of the AC power plug at all times during the service process.

To apply Lockout/Tagout:

1.) Plan and prepare for shutdown.
2.) Shutdown the equipment.
3.) Isolate the equipment.
4.) Apply Lockout/Tagout Devices.
5.) Remove battery.
6.) Control all stored and residual energy.
7.) Verify isolation.
All potentially hazardous stored or residual energy is relieved.

NOTICE Energy Control and Power Lockout for LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

WHEN SERVICING PARTS OF THE SYSTEM WHERE THERE IS EXPOSURE TO VOLTAGE GREATER THAN 30 VOLTS:
1. TURN OFF THE SCANNER.
2. UNPLUG THE SYSTEM.
3. MAINTAIN CONTROL OF THE SYSTEM POWER PLUG.
4. WAIT FOR AT LEAST 20 SECONDS FOR CAPACITORS TO DISCHARGE AS THERE ARE NO TEST POINTS TO VERIFY ISOLATION. THE AMBER LIGHT ON THE OP PANEL ON/OFF BUTTON WILL TURN OFF.
5. REMOVE THE SYSTEM BATTERY.

4-3-6 System Features

4-3-6-1 Control Panel

Figure 4-4 Control Panel Tour

1.) TGC
2.) New Patient
3.) End Exam
4.) Mode/Gain/Auto Keys
5.) Preset Key
6.) Imaging/Measurement Keys
7.) Depth/Zoom/Ellipse
8.) Image Keys
9.) Print Keys
10.) Freeze
11.) Keyboard

4-3-6-2 LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e SoftMenu Key Tour

In general, there are two types of softMenu keys: Paddle Switch and adjustable knobs.

Figure 4-5 SoftMenu Key Tour

1.) The Paddle Switch is used to access and adjust the Sub SoftMenu.
2.) Press the adjustable knobs to toggle option menu between line one and line two.
3.) Rotate the adjustable knobs to adjust the corresponding parameters.

4-3-6-3 Monitor Display

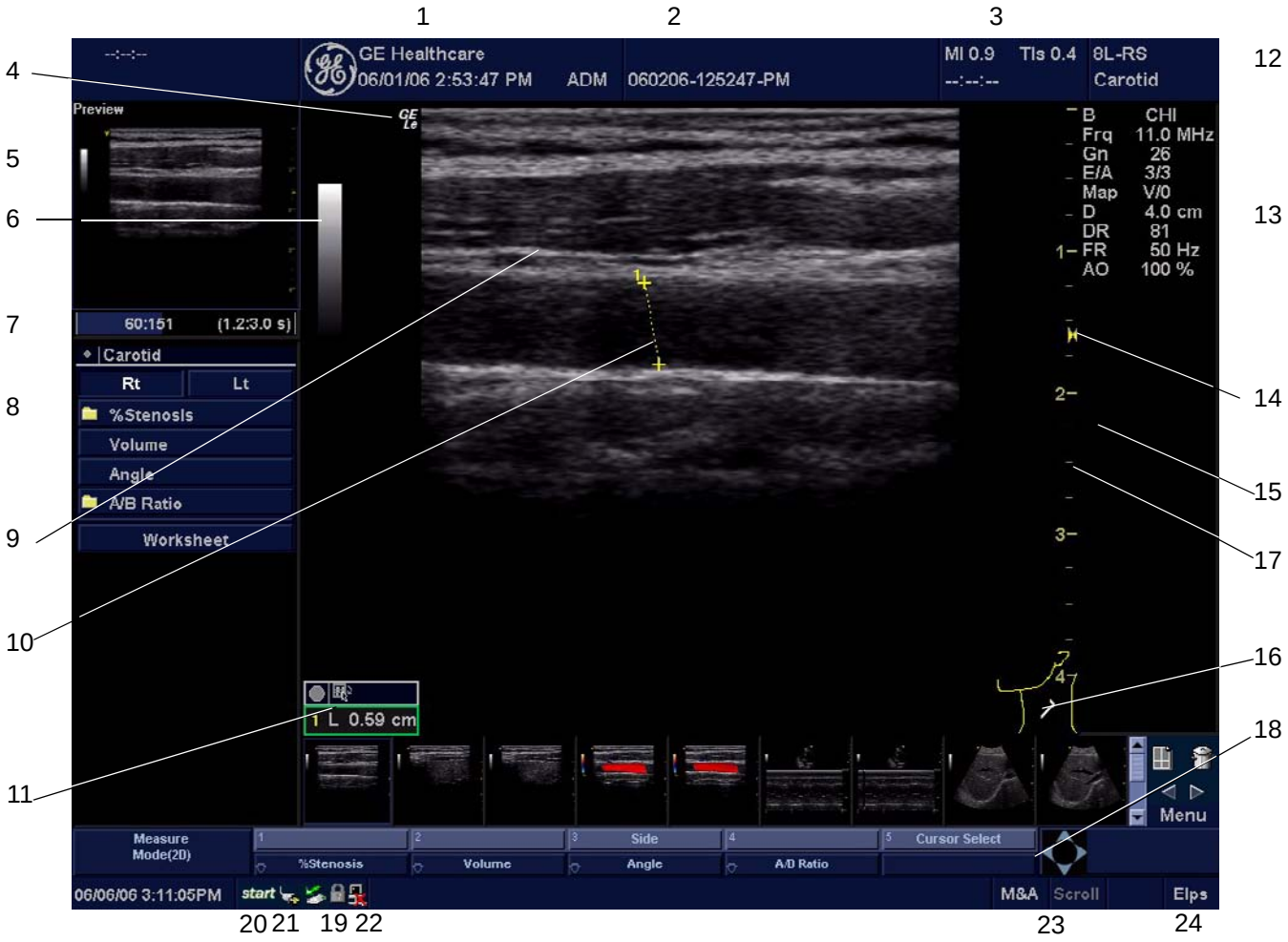

Figure 4-6 Monitor Display Tour

Table 4-2 Monitor Display Features

1. Institution/Hospital Name, Date, Time, Operator Identification, system status (real-time of frozen).	13. Imaging Parameters by Mode (current mode highlighted).
2. Patient Name, Patient Identification.	14. Focal Zone.
3. Acoustic Output Readout,	15. TGC (not shown on the image).
4. GE Symbol: Probe Orientation Marker. Coincides with a probe orientation marking on the probe.	16. Body Pattern.
5. Image Preview.	17. Depth Scale.
6. Gray/Color Bar.	18. SoftMenu
7. Cine Gauge.	19. Caps Lock: On/Off.
8. Measurement Summary Window.	20. Start menu icon.
9. Image.	21. Battery icon.
10. Measurement.	22. Network icon.
11. Results Window.	23. Trackball Functionality Status: Scroll, M&A (Measurement and Analysis), Position, Size, Scan Area Width and Tilt.
12. Probe Identifier. Exam Study.	24. Active key for Depth/Zoom/Ellipse

4-3-7 B Mode Checks

4-3-7-1 Preparations

1.) Connect one of the probes listed in 3-6-6 "Available Probes" on page 3-25, in Chapter 3 Installation to the System probe connector.

2.) Turn ON the scanner (if it isn't turned on already)

NOTE: The keyboard layout varies from each Product, the following figures show LOGIQ e R5.x.x as an example.

Figure 4-7 Controls available in B Mode

Figure 4-8 B Mode Screen Picture Example

4-3-7-2 B Mode OP Panel Controls

Table 4-3 B Mode Control Panel Controls

Step	Task	Expected Result(s)	Comments
1	Press B Mode key	B Mode Starts	
2	Adjust Depth	Adjust the field of view. Increasing the depth may view larger/deeper structures rates, and decreasing the depth may view near the skin line.Press Up/Down Button to increase/ decrease. Depth displays on the monitor in cm.	
3	Adjust Gain	Controls the amount of echo information displayed in an image. Turn B Mode dial to the left/right to increase/decrease Gain. Gain displays on the monitor in Gn (dB).	
4	Adjust Focus	Increases the number of focal zones or moves the focal zone(s) to tighten up the beam for specific area. Press the control to toggle between Focus Position and Focus Number. Press Up/Down Button to move or adjust the focal numbers.	
5	Activate Auto Optimize	Optimize the image based upon a specified region of interest or anatomy. Press the Center Button in the Gain Dial to toggle the ATO/ACE On and Off.	
7	Adjust Time Gain Compensation (TGC)	Amplifies the returning signals to correct for the attenuation caused by tissues at increasing depth. TGC slide pots spaced proportional to the depth. Move the slide pots to the left/right to decrease/increase TGC. A TGC curve appears on the display.	
8	Adjust Scan Area	Widen or narrow the size of the sector angle to maximize the image's region of interest (ROI). Press Scan Area and move the Trackball to narrow/widen the angle.	
9	Adjust Zoom	Changes the location of the focal point(s). A triangular focus marker indicates the depth of the focal point.	
10	Reverse	Toggles the left/right orientation of the scan image.	

4-3-7-3 B Mode Softmenu Key

Table 4-4 B Mode Softmenu Key

Step	Task	Expected Result(s)	comments
1	Adjust Rejection	Selects a level below which echoes will not be amplified (an echo must have a certain minimum amplitude before it will be processed).	
2	Activate Colorize	Enables gray scale image colorization. To deactivate, reselect a Gray Map.	
3	Adjust Edge Enhance	Edge Enhance brings out subtle tissue differences and boundaries by enhancing the gray scale differences corresponding to the edges of structures. Adjustments to M Mode's edge enhancement affects the M Mode only.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Adjust Edge Enhance/Contour	Edge Enhance brings out subtle tissue differences and boundaries by enhancing the gray scale differences corresponding to the edges of structures. Adjustments to M Mode's edge enhancement affects the M Mode only.	For Vivid e
4	Activate Gray Map	Determines how the echo intensity levels received are presented as shades of gray.	
5	Adjust Frequency	Multi Frequency mode lets you downshift to the probe's next lower frequency or shift up to a higher frequency.	
6	Adjust Frame Average	Temporal filter that averages frames together. This has the effect of presenting a smoother, softer image.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Adjust DDP	Temporal filter that averages frames together. This has the effect of presenting a smoother, softer image.	For Vivid e
7	Adjust Rotation	Rotates the image by selecting the value from the pop-up menu.	
8	Adjust Line Density	Optimizes B Mode frame rate or spatial resolution for the best possible image.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Adjust Frame Rate	Optimizes B Mode frame rate or spatial resolution for the best possible image.	For Vivid e
9	Power output	Optimizes image quality and allows user to reduce beam intensity. 2% increments between 0-100%. Values greater than 0.1 are displayed.	
10	Dynamic Range	Dynamic Range controls how echo intensities are converted to shades of gray, thereby increasing the adjustable range of contrast.	
11	Focus Number and Position	Increases the number of transmit focal zones or moves the focal zone(s) so that you can tighten up the beam for a specific area. A graphic caret corresponding to the focal zone position(s) appears on the right edge of the image.	
12	Virtual Convex	Virtual Convex for linear probe	
13	Virtual Apex	Virtual Convex for Sector probe	Only for LOGIQ e R5.x.x/R6.x.x/ R7.x.x, LOGIQ e Vet, LOGIQ i R5.x.x, Vivid e R5.x.x, Vivid e R6.x.x

4-3-8 M Mode Controls

4-3-8-1 Preparations

1.) Connect one of the probes listed in 3-6-6 "Available Probes" on page 3-25, in Chapter 3 Installation to the System probe connector.

2.) Turn ON the scanner (if it isn't turned on already).

Figure 4-9 Controls available in M Mode

Figure 4-10 M Mode Screen Picture Example

4-3-8-2 M Mode OP Panel Controls

Table 4-5 M Mode OP Panel Controls

Step	Task	Expected Result(s)	Comments
1	Press M Mode key	M Mode Starts	
2	Adjust Gain	Controls the amount of echo information displayed in an image. Turn B Mode dial to the left/right to increase/decrease Gain. Gain displays on the monitor in Gn (dB).	
3	Display M-Mode Cursor	Displays the M-Mode cursor on the B-Mode image. Press Cursor and Trackball to position M-Mode Cursor.	

4-3-8-3 M Mode Softmenu Key

Table 4-6 M Mode Softmenu Key

Step	Task	Expected Result(s)	Comments
1	Adjust Rejection	Selects a level below which echoes will not be amplified (an echo must have a certain minimum amplitude before it will be processed).	
2	Adjust Sweep Speed	Changes the speed at which the time line is swept. The following speed values are available, 1, 2, 3, 4, 6, 8, 12, 16.	
3	Adjust Edge Enhance	Edge Enhance brings out subtle tissue differences and boundaries by enhancing the gray scale differences corresponding to the edges of structures. Adjustments to M Mode's edge enhancement affects the M Mode only.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Adjust Edge Enhance/Contour	Edge Enhance brings out subtle tissue differences and boundaries by enhancing the gray scale differences corresponding to the edges of structures. Adjustments to M Mode's edge enhancement affects the M Mode only.	For Vivid e
4	Activate Gray Map	Determines how the echo intensity levels received are presented as shades of gray.	
6	Activate Colorize	Enables gray scale image colorization. To deactivate, reselect a Gray Map.	
7	Activate Full Timeline	Displays only timeline screen. Press the Full Timescreen to activate.	
8	Select Display Format	Select the format to display B image and M image on the LCD. Press Display Format, and select from the pop up menu.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Select Layout	Select the Layout to display B image and M image on the LCD. Press Display Format, and select from the pop up menu.	For Vivid e
9	Adjust Dynamic Range	Dynamic Range controls how echo intensities are converted to shades of gray, thereby increasing the adjustable range of contrast.	
10	Power output	Optimizes image quality and allows user to reduce beam intensity. 2% increments between 0-100%. Values greater than 0.1 are displayed.	

4-3-9 Color Flow Mode Checks

4-3-9-1 Preparations

1.) Connect one of the probes listed in 3-6-6 "Available Probes" on page 3-25, in Chapter 3 Installation to the System probe connector.

2.) Turn ON the scanner (if it isn't turned on already).

Figure 4-11 Controls available in Color Flow Mode

Figure 4-12 CFM Mode Screen Picture Example

4-3-9-2 Color Flow Mode OP Panel Controls

Table 4-7 Color Flow Mode OP Panel Controls

Step	Task	Expected Result(s)	comments
1	Press CFM-Mode key	CFM Mode Starts	
2	Adjust Gain	Amplifies the overall strength of the echoes processed in the Color Flow window. Turn the Gain dial (CFM Mode key) to the left/right to increase/decrease Gain.	

4-3-9-3 Color Flow Mode Softemenu Key

Table 4-8 Color Flow Mode Softmenu Key

Step	Task	Expected Result(s)	Comments
1	Threshold	Threshold assigns the gray scale level at which color information stops.	
2	Packet Size	Controls the number of samples gathered for a single color flow vector.	
3	Select Color maps	Allows a specific color map to be selected. After a selection has been made, the color bar displays the resultant map.	
4	Adjust Frequency	Enables the adjustment of the probe's operating frequency. Press Frequency and select desired value. The selected frequency is displayed in the status window.	
5	Set Frame Average	Averages color frames. Press Frame Average up/down to smooth temporal averaging.	
6	Color Invert	Views blood flow from a different perspective. Press Invert to reverse the color map.	
7	Adjust LIne Density	Trades frame rate for sensitivity and spatial resolution. If the frame rate is too slow, reduce the size of the region of interest, select a different line density setting, or reduce the packet size.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Adjust Frame Rate	Trades frame rate for sensitivity and spatial resolution. If the frame rate is too slow, reduce the size of the region of interest, select a different line density setting, or reduce the packet size.	For Vivid e
8	Activate Spatial Filter	Adjust Spatial Filter to smooth out the color, makes it look less pixely.	
9	Adjust Dynamic Range	Dynamic Range controls how echo intensities are converted to shades of gray, thereby increasing the adjustable range of contrast.	
10	Activate ACE	Eliminates the motion artifacts. Press Ace to activate.	
11	Adjust Angle Steer	Slants the Color Flow region of interest or the Doppler line to obtain a better Doppler angle.	
12	Move Baseline	Adjusts the baseline to accommodate faster or slower blood flows to eliminate aliasing.	

Table 4-8 Color Flow Mode Softmenu Key

Step	Task	Expected Result(s)	Comments
13	Change PRF (Pulse Repetition Frequency)	Velocity scale determines pulse repetition frequency. If the sample volume gate range exceeds single gate PRF capability, the system automatically switches to high PRF mode. Multiple gates appear, and HPRF is indicated on the display.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Change scale	Velocity scale determines pulse repetition frequency. If the sample volume gate range exceeds single gate PRF capability, the system automatically switches to high PRF mode. Multiple gates appear, and HPRF is indicated on the display.	For Vivid e
14	Transparency Map	Allows to select specific transparency map	
15	Focus Position	Increases the number of transmit focal zones or moves the focal zone(s) so that you can tighten up the beam for a specific area. A graphic caret corresponding to the focal zone position(s) appears on the right edge of the image.	
16	Power output	Optimizes image quality and allows user to reduce beam intensity. 10% increments between 0-100%. Values greater than 0.1 are displayed.	
17	Wall Filter	Wall Filter insulates the Doppler signal from excessive noise caused from vessel movement.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Low Vel Reject	Low Vel Reject insulates the Doppler signal from excessive noise caused from vessel movement.	For Vivid e
18	Angio	To enter PDI (Power Doppler Imaging) mode while not in CARD application. For CARD application, there's no "Angio" rotary on primary menu.	For Vivid e

4-3-10 Doppler Mode Checks

4-3-10-1 Preparations

1.) Connect one of the probes listed in 3-6-6 "Available Probes" on page 3-25, in Chapter 3 Installation to the System probe connector.

2.) Turn ON the scanner (if it isn't turned on already).

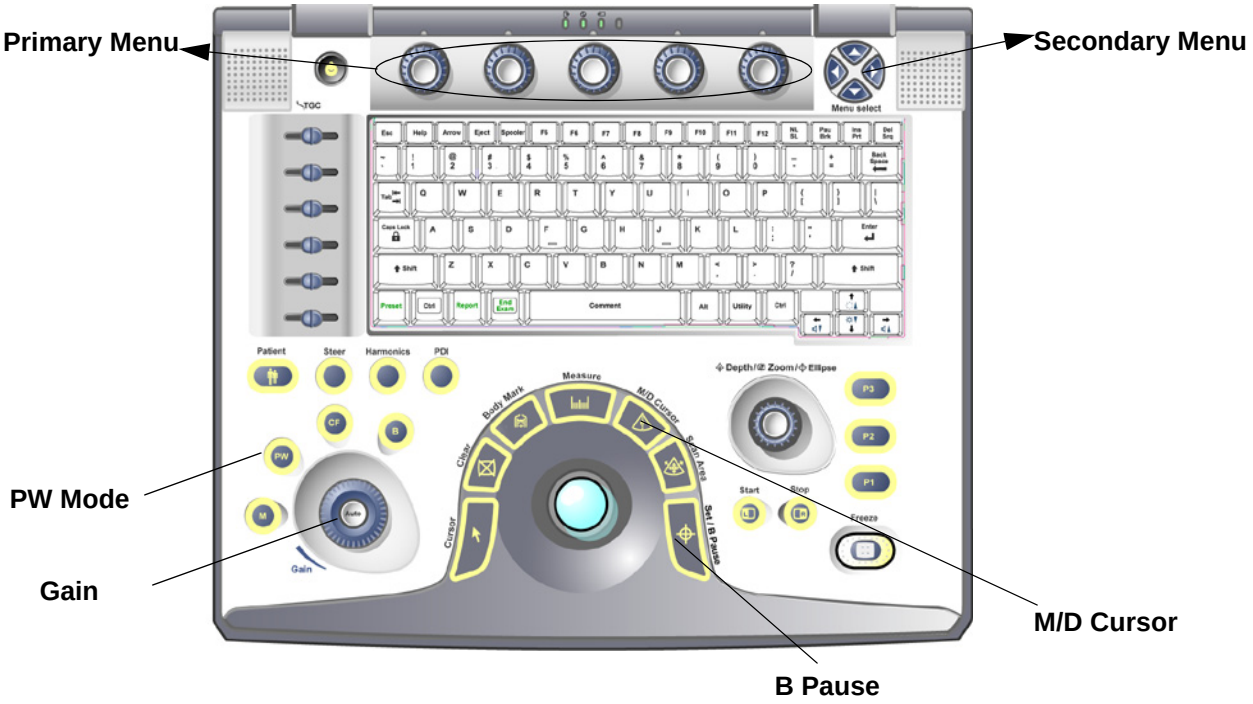

Figure 4-13 Controls available in Doppler Mode

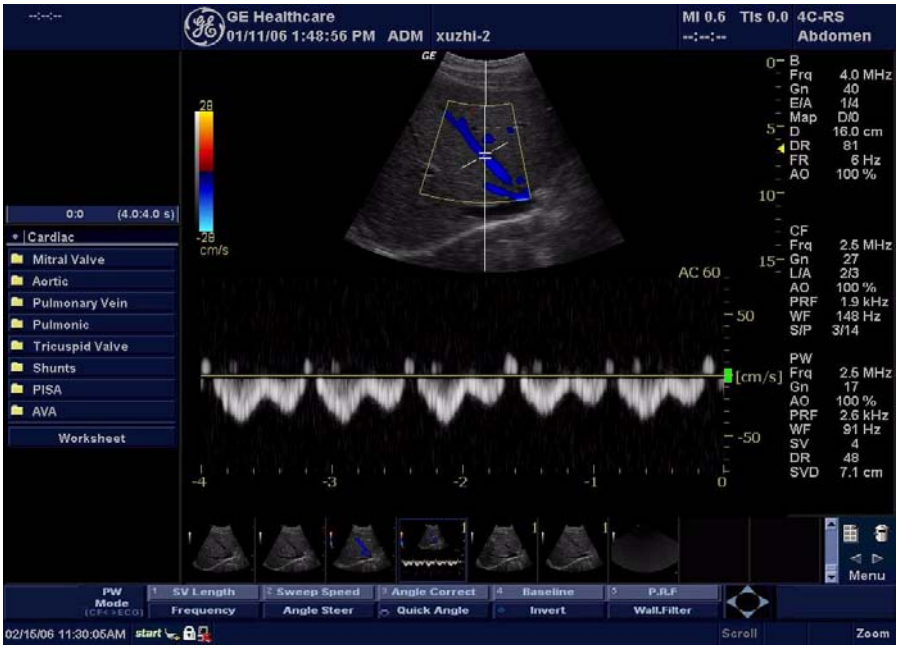

Figure 4-14 Doppler Mode Screen Picture Example

4-3-10-2 Doppler Mode OP Panel Controls

Table 4-9 Doppler Mode OP Panel Controls

Step	Task	Expected Result(s)	Comments
1	Press PW Mode key	PW Mode Starts	
2	Adjust Gain	Amplifies the overall strength of the echoes processed in the Color Flow window. Turn the Gain dial (PW Mode key) to the left/right to increase/decrease Gain.	
3	Display M/D-Mode Cursor	Displays the M/D-Mode cursor on the B-Mode image. Press Cursor and Trackball to position sample volume graphic. Click SV gate to adjust sample volume gate size.	
4	B-Pause	Toggle between simultaneous and update presentation while viewing Spectral Doppler. Press B Pause to toggle between simultaneous and update.	

4-3-10-3 Doppler Mode OP Panel Controls

Table 4-10 Doppler Mode Touch Panel Controls

Step	Task	Expected Result(s)	comments
1	Adjust Rejection	Selects a level below which echoes will not be amplified (an echo must have a certain minimum amplitude before it will be processed).	
2	Adjust Sweep Speed	Changes the speed at which timeline is swept. Press Sweep Speed up/down to increase/decrease the value.	
3	Activate Full Timeline	Displays only timeline screen. Press the Full Timescreen to activate.	
4	Select Display Format	Display layout can be preset to have B-Mode and Time-motion side-by-side or over-under.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Select Layout	Display layout can be preset to have B-Mode and Time-motion side-by-side or over-under.	For Vivid e
5	Adjust Frequency	Enables the adjustment of the probe's operating frequency. Press Frequency and select desired value. The selected frequency is displayed in the status window.	
6	Trace Direction	Allows to select different trace direction.	
7	Invert	Vertically inverts the spectral trace without affecting the baseline position. Press invert to invert the spectral trace. The Plus and Minus signs on the velocity scale reverse when the spectrum is inverted.	
8	Auto Calculation	Enables or disables auto calculation.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
9	Modify Calcs	Activates the window to modify the auto calculation items.	
10	Trace Method	Allows to select different trace method.	
11	Activate Colorize	Colorize the gray scale image to enhance the eyes' discrimination capability. Press the Cololize, Trackball to cycle through available maps and press Set to select.	
12	Activate Gray Map	Displays a map window adjacent to the image. Move the trackball to select the map. The image reflects the map as scrolled through the selections. Press Set to select.	
13	Dynamic Range	Controls how echo intensities are converted to shades of gray. Click Dynamic Range to increase/decrease the value.	
14	Adjust Angle Correct	Estimates the flow velocity in a direction at an angle to the Doppler vector by computing the angle between the Doppler vector and the flow to be measured.	
15	Adjust Angle Steer	Slant the Color Flow linear image left or right to get more information without moving probes. Click Angle Steer to the left to slant the linear image.	

Table 4-10 Doppler Mode Touch Panel Controls

Step	Task	Expected Result(s)	comments
16	Move Baseline	Adjusts the baseline to accommodate faster or slower blood flows to eliminate aliasing.	
17	Change PRF (Pulse Repetition Frequencies) - (Wall Filter)	Velocity scale determines pulse repetition frequency. If the sample volume gate range exceeds single gate PRF capability, the system automatically switches to high PRF mode. Multiple gates appear, and HPRF is indicated on the display.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Change Scale - (Low Vel Reject)	Velocity scale determines pulse repetition frequency. If the sample volume gate range exceeds single gate PRF capability, the system automatically switches to high PRF mode. Multiple gates appear, and HPRF is indicated on the display.	For Vivid e
18	Trace Sensitivity	Adjusts the sensitivity to get more accurate envelope trace.	
19	Time Resolution	Adjusts the resolution in frequency domain.	
20	Spectral Average	Optimizes the smoothness of the spectrum. Different levels can be selected.	
21	Power output	Optimizes image quality and allows user to reduce beam intensity. 10% increments between 0-100%.	
22	SV Length	Sizes the sample volume gate.	
23	Wall Filter	Wall Filter insulates the Doppler signal from excessive noise caused from vessel movement.	For LOGIQ e, LOGIQ e Vet and LOGIQ i
	Low Vel Reject	Wall Filter insulates the Doppler signal from excessive noise caused from vessel movement.	For Vivid e

4-3-11 CWD Functional Check

4-3-11-1 Preparations

1.) Connect 3S-RS/6S-RS/6Tc-RS Probe to the system, see in Chapter 3 Installation.
2.) Turn ON the scanner (if it isn't turned on already).

4-3-11-2 Activating CW Doppler

To activate CW Doppler Mode:

Ensure that the appropriate CW probe is connected.

- For LOGIQ e, LOGIQ e Vet and LOGIQ i, press **F6** on the keyboard to enter CW mode. F6 is the predefined function key for CW, which can be configured in Utility/Config -> Admin -> Function Key preset menu.
- For Vivid e, press CW Key on the keyboard.

The Doppler Spectrum appears, along with the CW Top/Sub Menu Menu.

Figure 4-1. CWD Screen

The following CW parameters are displayed: Frequency, Gain, Acoustic Output, Scale, Wall Filter and Dynamic Range.

4-3-11-3 Exiting CW Doppler

To exit CW Doppler Mode,

- For LOGIQ e, LOGIQ e Vet and LOGIQ i, press F6.
- For Vivid e, press CW.

4-3-12 Basic Measurements

*NOTE: The following instructions assume that you first scan the patient and then press **Freeze**.*

4-3-12-1 Distance and Tissue Depth Measurements

1.) Press **MEASURE** once; an active caliper displays.
2.) To position the active caliper at the start point (distance) or the most anterior point (tissue depth), move the **TRACKBALL**.
3.) To fix the start point, press ***Set***. The system fixes the first caliper and displays a second active caliper.
4.) To position the second active caliper at the end point (distance) or the most posterior point (tissue depth), move the **TRACKBALL**.
5.) To complete the measurement, press **SET**. The system displays the distance or tissue depth value in the measurement results window.

4-3-12-2 Circumference/Area (Ellipse) Measurement

1.) Press **MEASURE** once; an active caliper displays.
2.) To position the active caliper, move the **TRACKBALL**.
3.) To fix the start point, press **SET**. The system fixes the first caliper and displays a second active caliper.
4.) To position the second caliper, move the **TRACKBALL**.
5.) Adjust the **ELLIPSE**; an ellipse with an initial circle shape appears.
6.) To position the ellipse and to size the measured axes (move the calipers), move the **TRACKBALL**.
7.) To increase the size, rotate the **ELLIPSE** button clockwise. To decrease the size, contrarotate the **ELLIPSE** button.
8.) To complete the measurement, press **SET**. The system displays the circumference and area in the measurement results window.

4-3-12-3 Worksheets

Measurement/Calculation worksheets are available to display and edit measurements and calculations. There are generic worksheets as well as Application specific worksheets. The worksheets are selected from the Measurement Touch Panel.

4-3-13 Probe/Connectors Usage

4-3-13-1 Connecting a probe

1.) Place the probe's carrying case on a stable surface and open the case.
2.) Carefully remove the probe and unwrap the probe cable.
3.) DO NOT allow the probe head to hang free. Impact to the probe head could result in irreparable damage.
4.) Align the connector with the probe port and carefully push into place.
5.) Lock the probe latch upward.
6.) Carefully position the probe cord so it is free to move and is not resting on the floor.

4-3-13-2 Activating the probe

The probe activates in the currently-selected operating mode. The probe's default settings for the mode and selected exam are used automatically.

4-3-13-3 Deactivating the probe

1.) Press the ***Freeze*** key.
2.) Gently wipe the excess gel from the face of the probe. (Refer to the Basic User Manual for complete probe cleaning instructions.)
3.) Carefully slide the probe around the right side of the keyboard, toward the probe holder. Ensure that the probe is placed gently in the probe holder.

4-3-13-4 Disconnecting the probe

Probes can be disconnected at any time. However, the probe should not be selected as the active probe.

1.) Unlock the probe latch downward.
2.) Pull the probe and connector straight out of the probe port.
3.) Carefully slide the probe and connector away from the probe port and around the right side of the keyboard.
4.) Ensure the cable is free.
5.) Be sure that the probe head is clean before placing the probe in its storage box.

⚠ **WARNING** ***Take the following precautions with the probe cables: Do not bend. If you have purchased the cart option, be sure to keep probe cables free from the wheels.***

⚠ **WARNING** ***Be careful not to trip on the probe cables if using the device without the optional cart.***

4-3-14 Using Cine

4-3-14-1 Activating CINE

Press **Freeze**, then roll the **Trackball** to activate CINE. To start CINE Loop playback, press Run/Stop. To stop CINE Loop playback. press Run/Stop.

4-3-14-2 Quickly Move to Start/End Frame

Press ***First*** to move to the first CINE frame; press ***Last*** to move to the last CINE frame.

4-3-14-3 Start Frame/End Frame

Press the ***Start Frame*** Two-Button Softkey to move to the beginning of the CINE Loop. Adjust the ***Start Frame*** up/down Two-Button Softkey upward to move forward through the CINE Loop. Adjust the Softkey downward to move backward through the CINE Loop.

Press the ***End Frame*** Two-Button Softkey to move to the end of the CINE Loop. Adjust the ***End Frame*** up/down Two-Button Softkey upward to move forward through the CINE Loop. Adjust the Softkey downward to move backward through the CINE Loop.

4-3-14-4 Adjusting the CINE Loop Playback Speed

Adjust the ***Loop Speed*** up/down Two-Button Softkey to increase/decrease the CINE Loop playback speed.

4-3-14-5 Moving through a CINE Loop Frame By Frame

Adjust the ***Frame by Frame*** up/down Two-Button Softkey to move through CINE memory one frame at a time.

4-3-15 Image Management (QG)

For Image Management functionality refer to the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Quick Guide. It talks about several topics:

- Clipboard
- Printing Images
- Browsing and Managing an Exam's Stored Image
- Connectivity, and Dataflow Concept and Creation
- Starting an Exam
- Configuring Connectivity
- TCP/IP
- Services (Destinations)
- Buttons
- Views
- Verifying and Pinging a Device

4-3-16 Backup and Restore Database, Preset Configurations and Images

4-3-16-1 Formatting Media

1.) To format the backup media, DVD-RW, select the **UTILITY/CONFIG** button on the Keyboard.
2.) Select **CONNECTIVITY**, then **REMOVABLE MEDIA**. Properly label and Insert the backup media.
3.) Select the media type from the drop down menu.
4.) Enter the label for the media as shown in Figure 4-15. It is best to use all capital letters with no spaces or punctuation marks. Press **Format**.

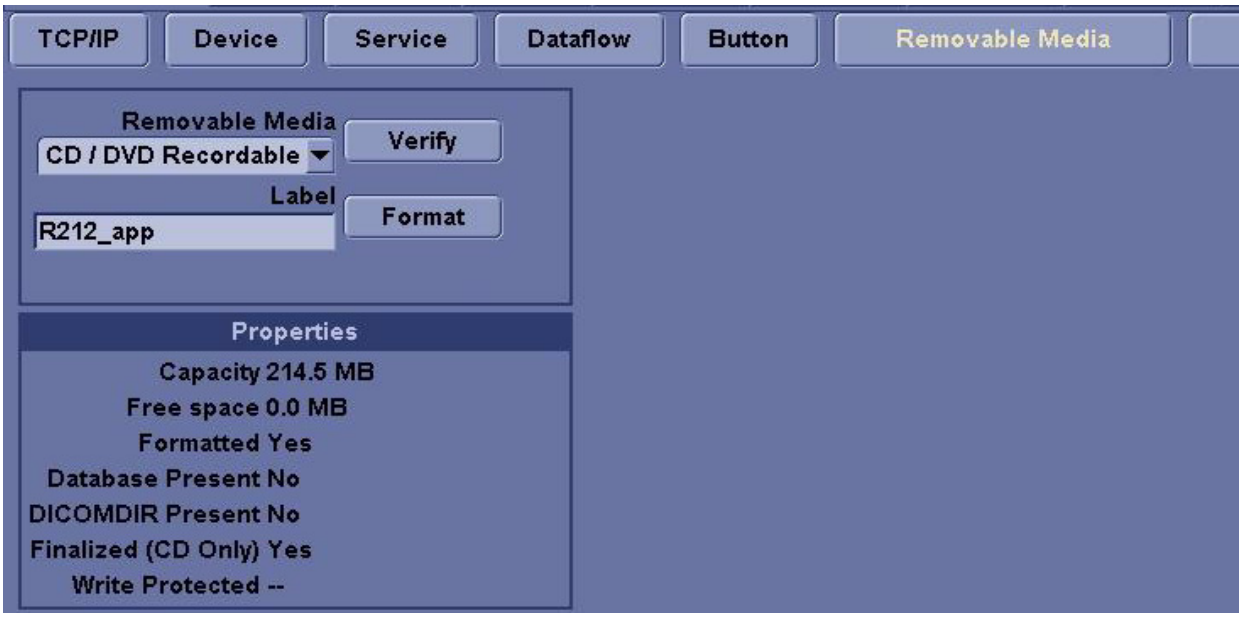

Figure 4-15 Format and Verify Media

5.) The Ultrasound system displays a pop-up menu, as shown in Figure 4-16. When the formatting has been completed, press **OK** to continue.
6.) If desired, verify that the format was successful by returning to Utility/Config->Connectivity->Tools->Removable Media and selecting **VERIFY** as shown in Figure 4-15.

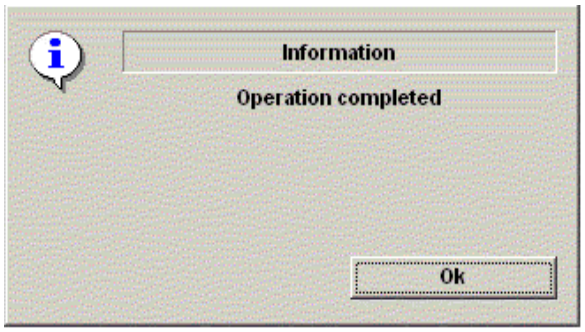

Figure 4-16 Format Successful Pop-up Menu

4-3-16-2 Backup System Presets and Configurations

NOTE: Always backup any preset configurations before a software reload. This ensures that if the presets need to be reloaded, after the software update, they will be the same ones the customer was using prior to service.

1.) Insert a formatted DVD into the drive.
2.) On the Keyboard, press **UTILITY/CONFIG**.
3.) On the LCD display, press **SYSTEM**.
4.) On the LCD display, select **BACKUP/RESTORE**.

NOTE: If you are not logged in as GE Service or with administrator privileges, the Operator Login window is displayed. Log on with administrator privileges.

5.) In the Backup list, select Patient Archive, Report Archive and User Defined Configuration.
6.) In the Media field, select DVD-RW (or USB memory device).
7.) Select **BACKUP**.

The system performs the backup. As it proceeds, status information is displayed on the Backup/Restore screen.

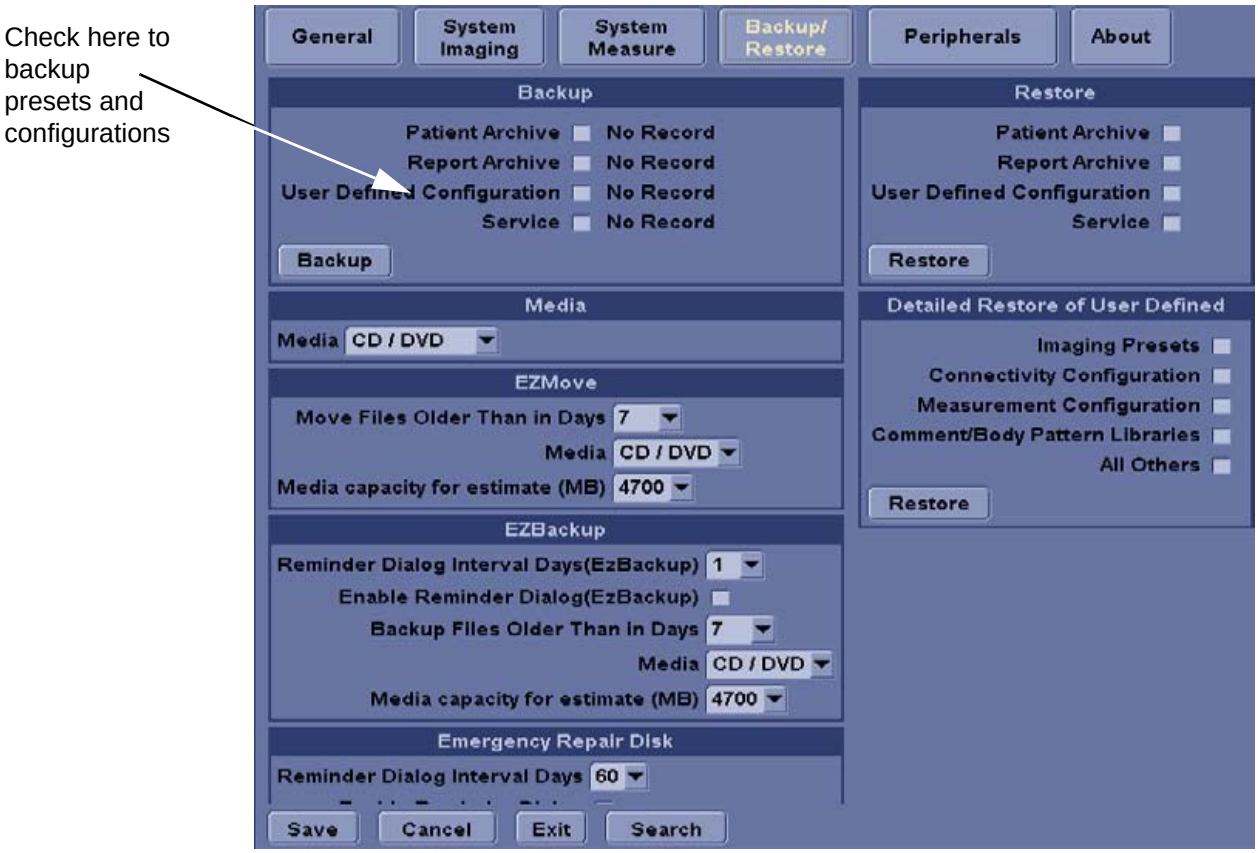

Figure 4-17 Backup/Restore Menu

4-3-16-3 Restore System Presets and Configurations

CAUTION The restore procedure **overwrites** the existing database on the local hard disk drive. Make sure to insert the correct DVD (or USB memory device).

1.) Insert the Backup/Restore DVD (or USB memory device) into the drive.
2.) On the Keyboard, press **UTILITY/CONFIG**.
3.) On the LCD display, press **SYSTEM**.
4.) On the LCD display, select **BACKUP/RESTORE**.

NOTE: If you are not logged in with administrator privileges, the Operator Login window is displayed. Log on with administrator privileges.

5.) In the Restore list, select Patient Archive, Report Archive and User Defined Configuration.
6.) In the Media field, select the Backup/Restore DVD-RW (or USB memory device).
7.) Select **RESTORE**.

The system performs the restore. As it proceeds, status information is displayed on the Backup/Restore screen.

After the Restore completes, the system will automatically reboot.

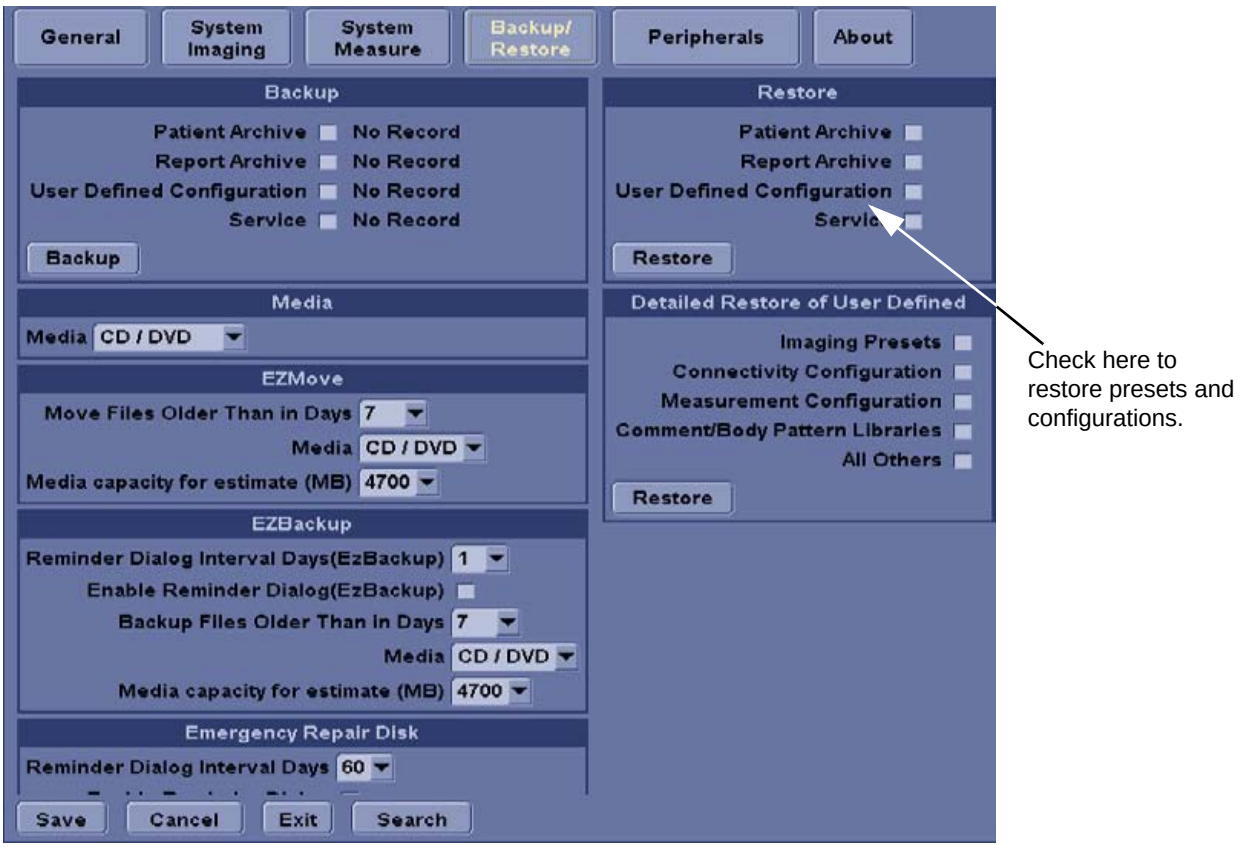

Figure 4-18 Backup/Restore Menu

4-3-16-4 Archiving Images

1.) Insert the archive media. To format the archive media, DVD-RW, select the Utility/Config button on the Keyboard.

NOTE: For LOGIQ e R5.x.x, LOGIQ e R6.x.x, LOGIQ e R7.x.x, LOGIQ e Vet, Vivid e R5.x.x, Vivid e R6.x.x and LOGIQ i R5.x.x, USB HDD also can be used as archive media.

2.) Select Connectivity, then Removable Media.

3.) Format the DVD-RW. Verify the format if desired.

4.) Images will be moved from the hard disk drive by date. Therefore, the best way is to label media by date.

NOTE: Images will be moved from the hard disk drive by date. Therefore, the best way to label media is by date. When images are moved to the archive media, they will be deleted from the system hard disk drive. However, the patient database (backed up earlier) maintains pointers to the location of the images on the archive media.

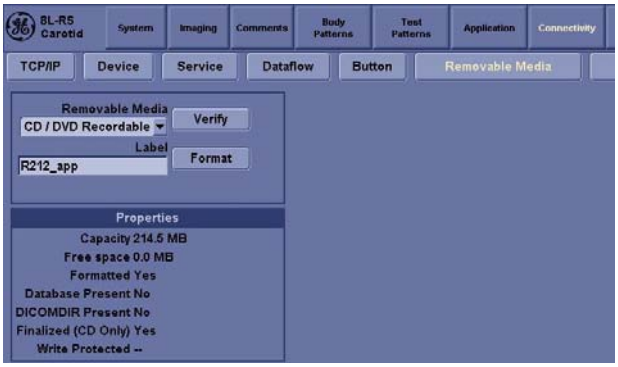

Figure 4-19 Format DVD-RW Screen

5.) Select Backup/Restore, then EZBackup/Move.

NOTE: For LOGIQ e R4.x.x, LOGIQ i R4.x.x and Vivid e R4.x.x, there is one buttons for EZBackup/ Move, while for LOGIQ e R5.x.x, LOGIQ e R6.x.x, LOGIQ e R7.x.x, LOGIQ e Vet, LOGIQ i R5.x.x, Vivid e R5.x.x, and Vivid e R6.x.x, there are two buttons for EZBackup and EZMove.

6.) Select “Backup File Older Than in Days”.

Choose the days which want to older than current exam date.

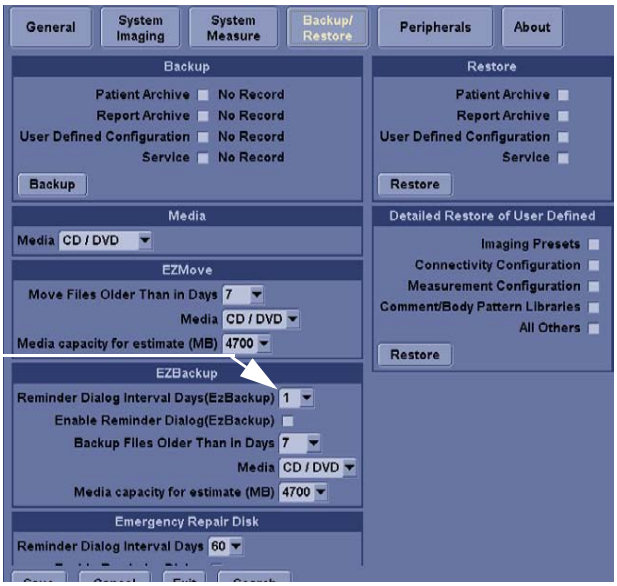

Figure 4-20 EZBackup/Move

4-3-16-4 Archiving Images (cont'd)

7.) Press **PATIENT** and set the Dataflow to store images directly to DVD-ROM.

8.) From the image screen, press **EZBACKUP/MOVE**. The Move Images pop-up appears.

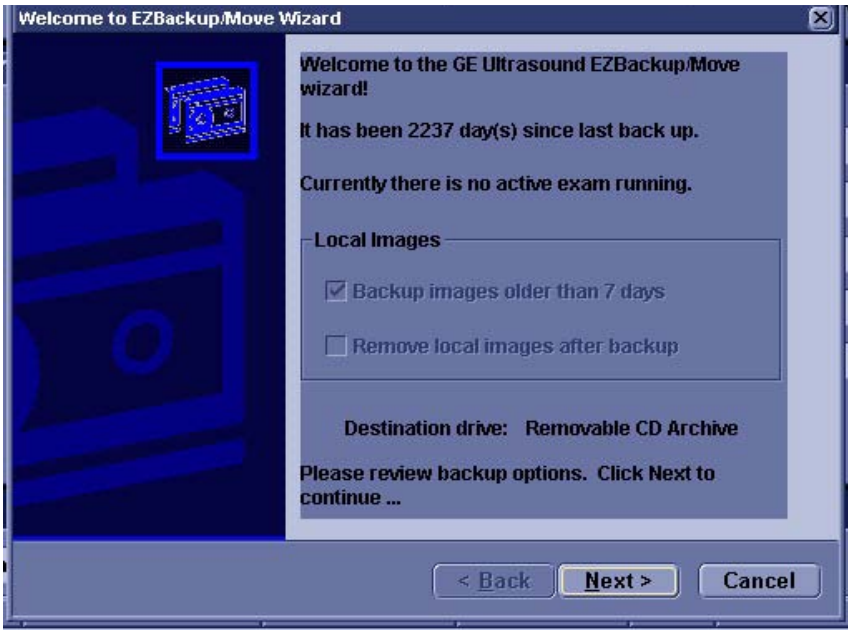
Welcome to EZBackup/Move Wizard
Welcome to the GE Ultrasound EZBackup/Move wizard!
It has been 2237 day(s) since last back up.
Currently there is no active exam running.
Local Images
Backup images older than 7 days
Remove local images after backup
Destination drive: Removable CD Archive
Please review backup options. Click Next to continue ...
< Back
Next >
Cancel

Figure 4-21 Image Archive Move Pop-up Menu

9.) Press **Next** on pop-up message.

10.) A media check message appears. Press **OK** to continue.

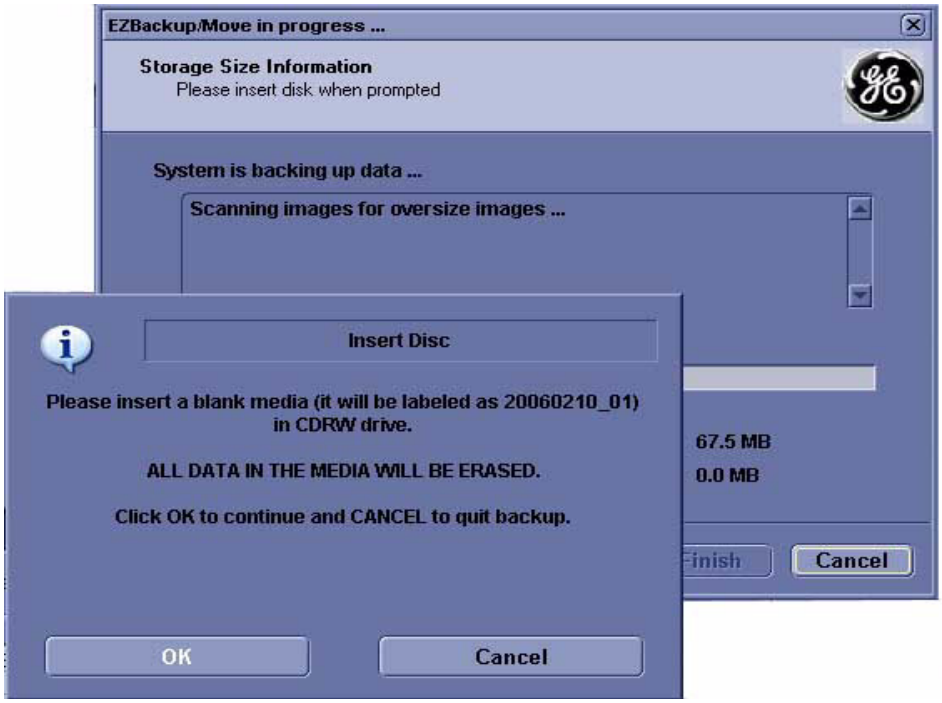
EZBackup/Move in progress ...
Storage Size Information
Please insert disk when prompted
System is backing up data ...
Scanning images for oversize images ...
67.5 MB
0.0 MB
Finish
Cancel
Insert Disc
Please insert a blank media (it will be labeled as 20060210_01) in CDRW drive.
ALL DATA IN THE MEDIA WILL BE ERASED.
Click OK to continue and CANCEL to quit backup.
OK
Cancel

Figure 4-22 Media check message

4-3-16-4 Archiving Images (cont'd)

11.) Press **Finish** after Backup/Move complete.

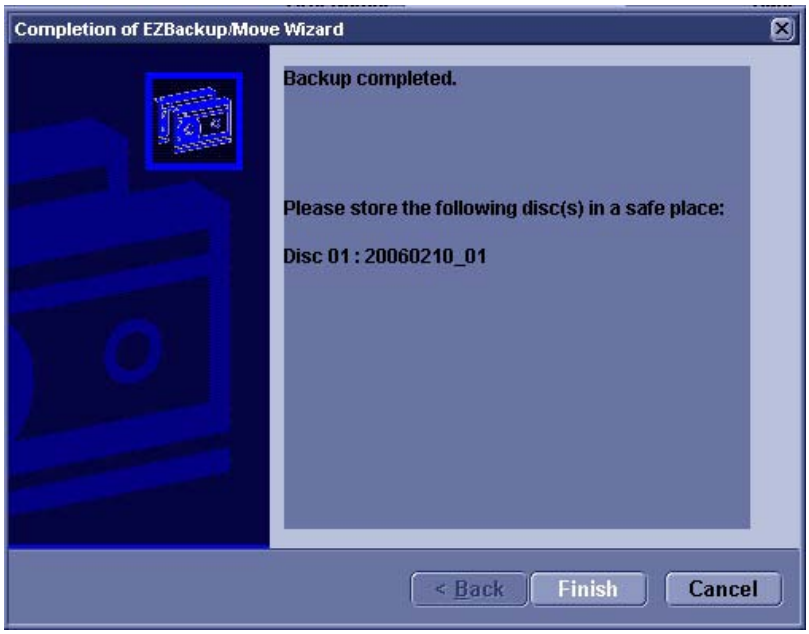

Figure 4-23 EZBackup/Move complete

All databases, presets and images should now be saved to removable media.

4-3-16-5 Emergency Repair Disk

1.) Connect the USB HDD to system.

2.) Select Backup/Restore, then Emergency Repair Disk.

3.) Select "Reminder Dialog Interval Days".

Reminder Dialog Interval Days

Figure 4-24 Emergency Repair Disk

4-3-16-5 Emergency Repair Disk (cont'd)

4.) Return to scan mode. Press Ctrl + B, the Emergency Disk Making window pop-up appears.

Welcome to Emergency Disk Making Wizard
Welcome to Emergency Disk Making Wizard!
NOTE: All data in the USB Emergency Disk will lost!!!
The Emergency Disk Making Wizard will help you create a copy of the information on your system hard disk.In the event that the original data on your hard disk is accidentally erased or overwritten, you can use the emergency disk to restore your lost or damaged data.We strongly recommend you to make an Emergency Repair Disk! Click Next to contine...
< Back
Next >
Cancel

Figure 4-25 Emergency Disk Making Pop-up Menu

5.) Press **Next** on pop-up message.

6.) A storage information message appears. Press **Next** to continue.

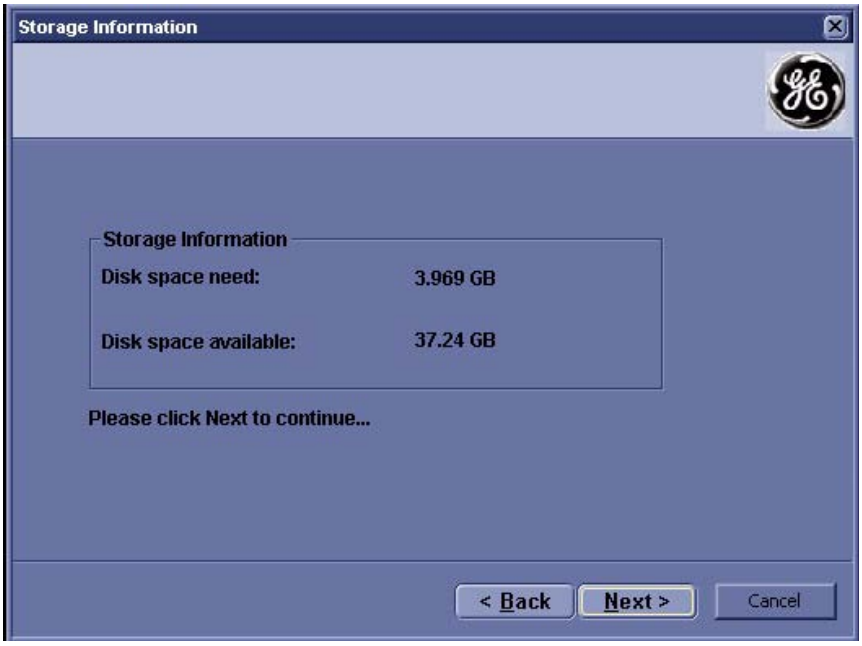

Figure 4-26 Storage Information message

4-3-16-5 Emergency Repair Disk (cont'd)

7.) Press **Finish** after Emergency Disk Making complete.

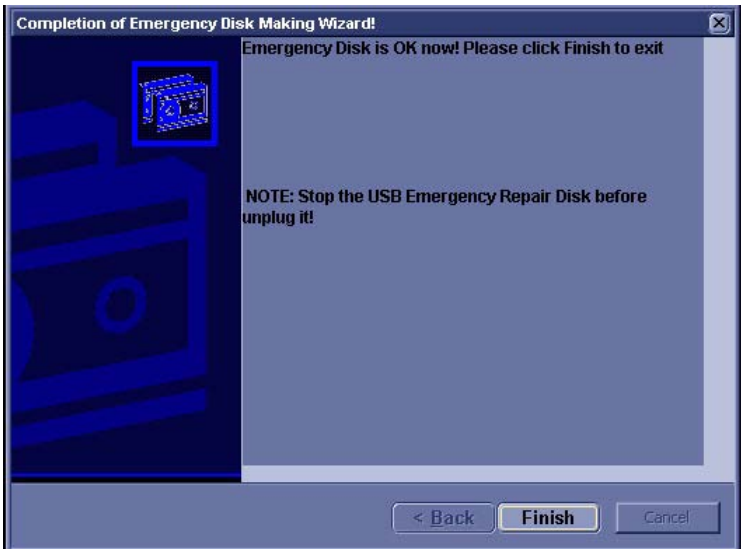
Completion of Emergency Disk Making Wizard!
Emergency Disk is OK now! Please click Finish to exit
NOTE: Stop the USB Emergency Repair Disk before unplug it!
< Back
Finish
Cancel

Figure 4-27 Emergency Disk Making Complete

All databases, presets and images should now be saved to Emergency Disk.

8.) Press Ctrl + R, Emergency Disk Recovery will pop-up.

Welcome to Emergency Disk Recovery Wizard
Welcome to Emergency Disk Recovery Wizard!
All the existing data including patient data, archive, preset, servie, report will be overwritten by the USB Emergency Disk! After finish recovery, the system will reboot!Click Next to contine...
< Back
Next >
Cancel

Figure 4-28 Emergency Disk Recovery

9.) Press **Next** on pop-up message.

4-3-16-5 Emergency Repair Disk (cont'd)

10.) A recovery information message appears. Press **Next** to continue.

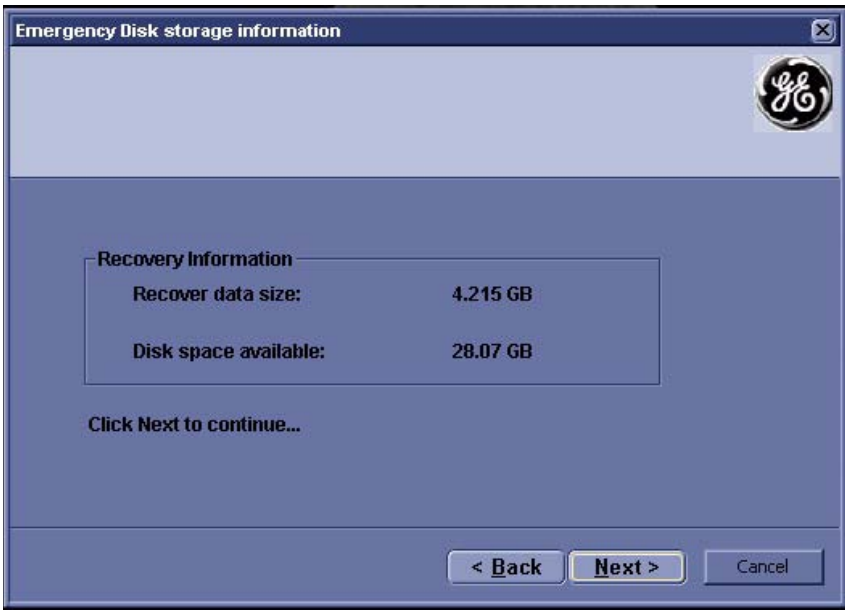

Figure 4-29 Recovery Information message

11.) Press **Finish** after Emergency Disk Recovery complete.

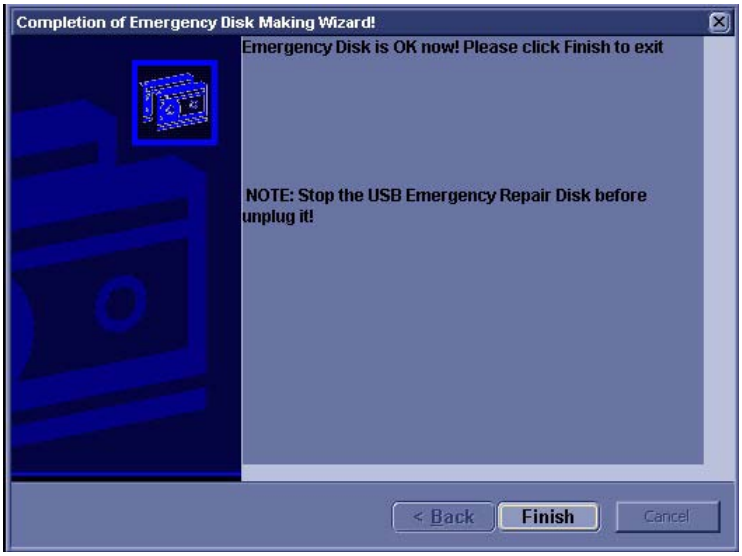
Completion of Emergency Disk Making Wizard!
Emergency Disk is OK now! Please click Finish to exit
NOTE: Stop the USB Emergency Repair Disk before unplug it!
< Back
Finish
Cancel

Figure 4-30 Emergency Disk Recovery Complete

Section 4-4
Software Configuration Checks

Table 4-11 Software Configuration Checks

Step	Task to do	Expected Result(s)
1.	Check Date and Time setting	Date and Time are correct
2.	Check that Location (Hospital Name) is correct	Location Name is correct
3.	Check Language settings	Desired Language is displayed
4.	Check assignment of Printer Keys	For LOGIQ e, LOGIQ e Vet, LOGIQ i, the default function for Print1-3 Keys is P1 (store image); P2 (print); P3 (USB Quick Save). Print1-3 Keys can also be assigned as desired by the customer For Vivid e, the default function for Store Key and Print1-2 Keys is Store (store image); P1 (print); P2 (USB Quick Save). Store Key and Print1-2 Keys can also be assigned as desired by the customer
5.	Check that all of the customer's options are set up correct	All authorized functions are enabled

Section 4-5
Peripheral Checks

NOTE: Please refer to Peripherals Manual for detail procedures of each peripheral check.

Check that peripherals work as described below:

Table 4-12 Peripheral Checks

Step	Task to do	Expected Result(s)
1.	Press (**FREEZE**)	Stop image acquisition.
2.	Press the default print key on the Control Panel	The image displayed on the screen is printed on printer.
3.	Connect with Foot witch on USB port and press once.	To start image acquisition (the same function as (**FREEZE**) key).

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Chapter 5
Components and Functions (Theory)

Section 5-1
Overview

This chapter explains LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e 's system concepts, component arrangement, and subsystem function. It also describes the Power Distribution System (PDS) and probes.

Table 5-1 Contents in Chapter 5

Section	Description	Page Number
5-1	Overview	5-1
5-2	Block Diagrams and Theory	5-2
5-3	Power Diagrams	5-6
5-3	Power Diagrams	5-6
5-4	Common Service Platform	5-10

Section 5-2
Block Diagrams and Theory

5-2-1 Block Diagram

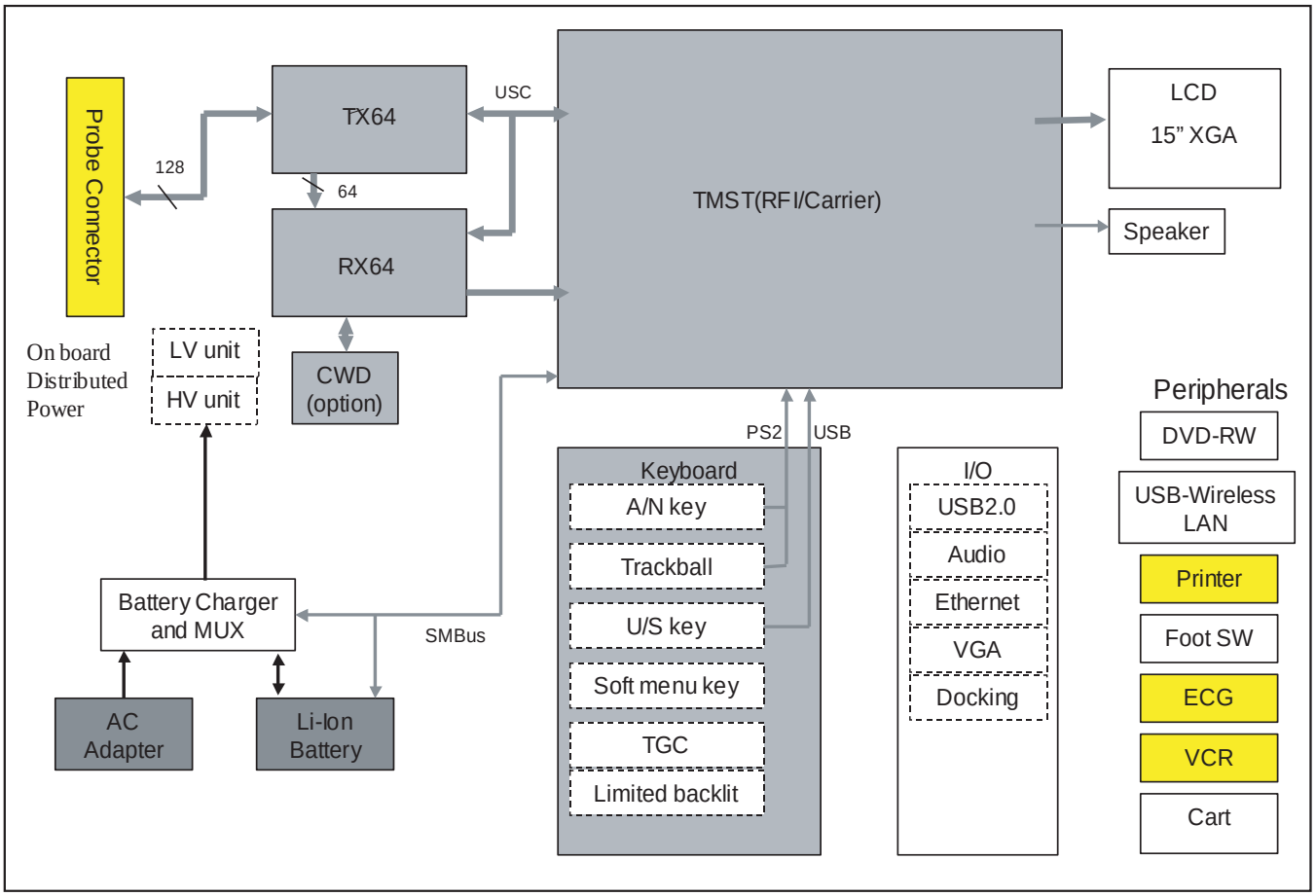


Figure 5-1 LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e System Block Diagram

- Pre Amp: Preamplifier
- OQX2: Beamforming ASIC
- CHACOM: B/M/CFM/DOP mode signal processor ASIC
- DSP: Digital Signal Processor with PCI interface between CPU and TMST
- HV unit: High voltage unit
- LV unit: Low voltage unit
- DC/DC & HV Ctrl, SMBUS I/F: DC/DC high voltage control smart bus interface
- TUSC FPGA: LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Ultrasound controlling and Image data transfer FPGA

5-2-2 General Information

- LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e is an ultrasound imaging scanner.
- The system can be used for:
  - 2D Black and White imaging
  - 2D Color Flow
  - M-Mode Black and White imaging
  - Doppler
  - A number of combinations of the above
- LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e is a digital beam forming system that can handle up to 128 elements linear probes.
- Signal flow from the Probe Connector Panel to the Front End, to the Mid Processors and Back End Processor and finally to the LCD and peripherals.
- System configuration is stored on a hard disk drive and all necessary software is loaded from the hard disk drive on power up.

5-2-3 External I/O

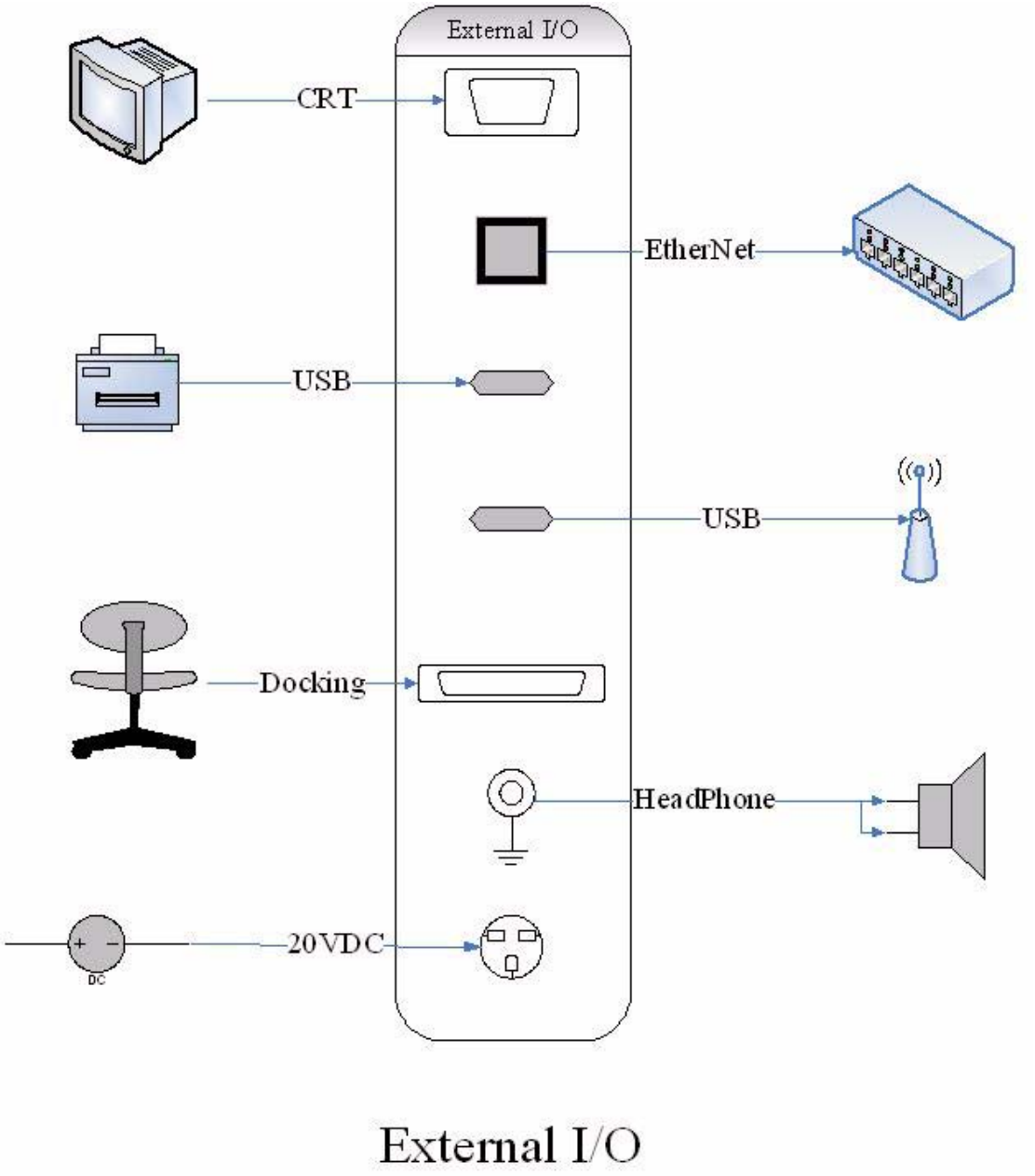


Figure 5-2 External I/O module overview

External I/O:

The external I/O is the interface between the scanner and all external items. Examples: wireless network, USB interface medical grade printer and external medical grade SVGA displayer.

5-2-4 Peripherals

DVD-RW, and a Black & White Video Printer can be connected to the external I/O.

5-2-5 Wiring

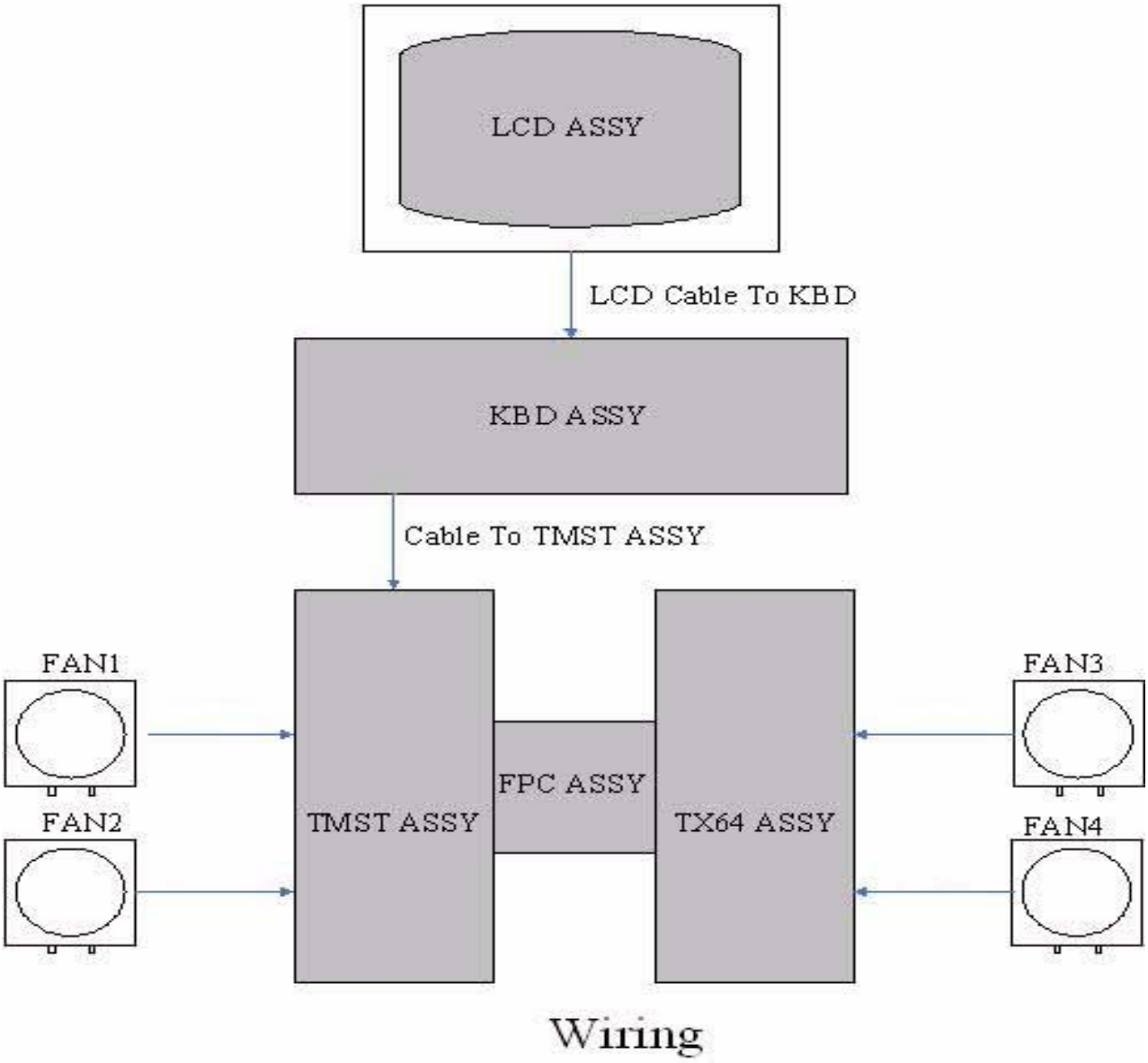


Figure 5-3 Wiring Diagram

- TX64: Transmit board
- RX64: Front end processing board
- TMST: Master board
- PWR SW: Power Switch
- FPC: Flexible Print Circuit board

Section 5-3
Power Diagrams

5-3-1 Overview

The AC Power assy's main tasks are to isolate and output to the DC/DC unit which is inside the system console. The input of AC power pack will be the AC outlet and it's universal, the range is AC 90V-264V, 47-63Hz. And no main power switch located on this power pack.

5-3-2 AC Power

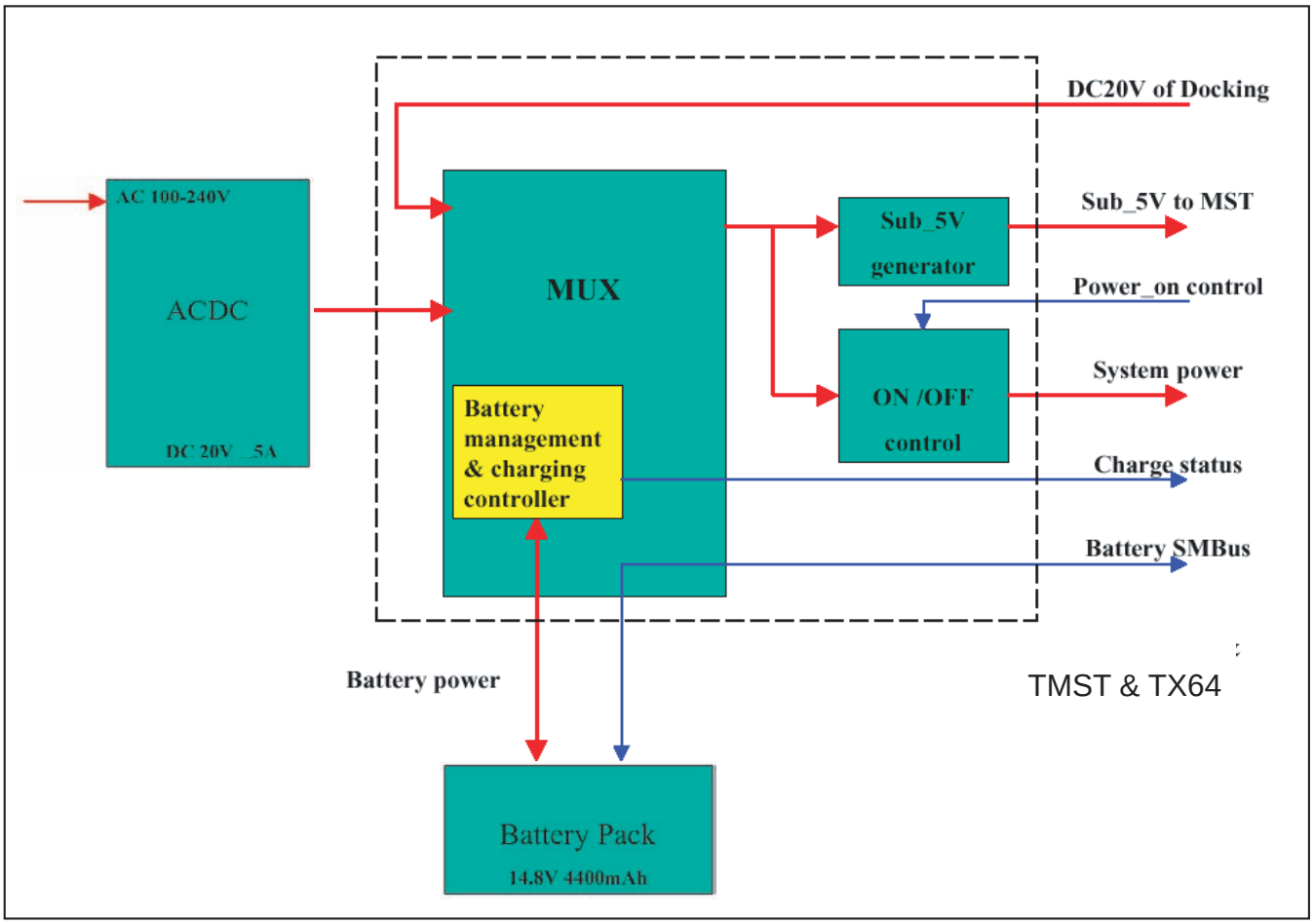


Figure 5-4 AC Power Distribution Block Diagram

The mains cord has plugs in one side end. A male plug connects to the mains outlet on site.

The mains voltage is routed to the AC power pack through a Circuit Breaker located on the site.

The Circuit Breaker is of the auto fuse type, if for some reason the current grows to high, the switch will automatically break the power.

From the Main Circuit Breaker, the AC power is routed via an Inrush Current Limiter to a internal outlet connector for the Mains Transformer.

5-3-3 Battery charging

The charging circuit is lithium-Ion battery charge and discharge controller. This block can switch the power between the battery and the output of AC Pack. If the output of AC Pack is available, the power input of Charge Board Unit should be from the AC Pack and the battery will be charged if it's not full. This block will be also in charge of the battery charging monitor to avoid the battery over heat and over charging, charging will be shut off automatically if battery is charged fully. The battery will discharge to provide the power to the system when out of AC power pack output or AC line.

5-3-4 Air Flow Distribution

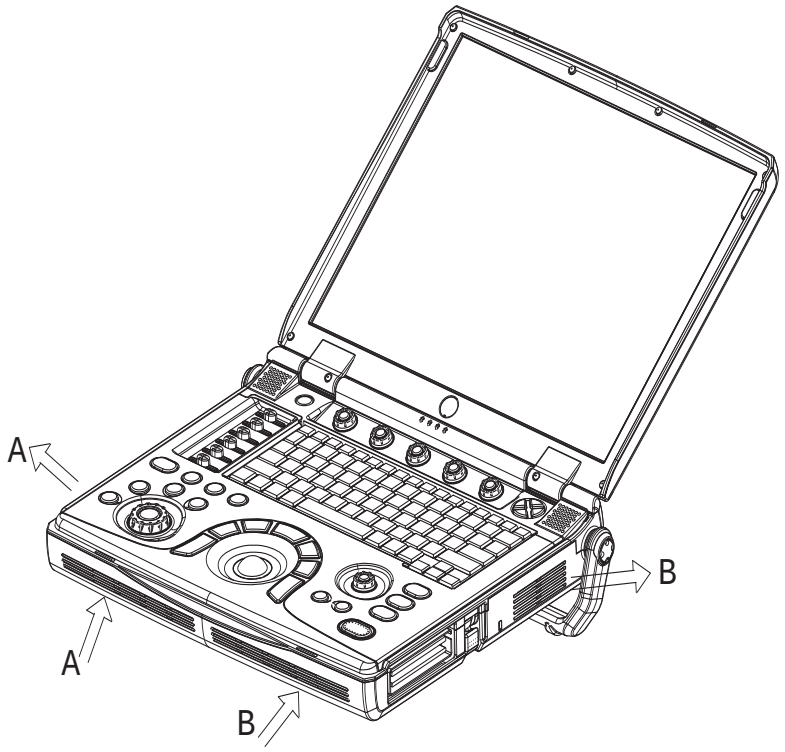


Figure 5-5 Air Flow Inside the Scanner

The two air flow passes allow the scanner to be cooled down as shown in the figure above.

- Path A (Bottom front > CPU Assy > Bottom left) for TMST & CPU Assy cooling.
- Path B (Bottom front > TX64/RX64 > Bottom right) for TX64/RX64 cooling.

5-3-5 Fans

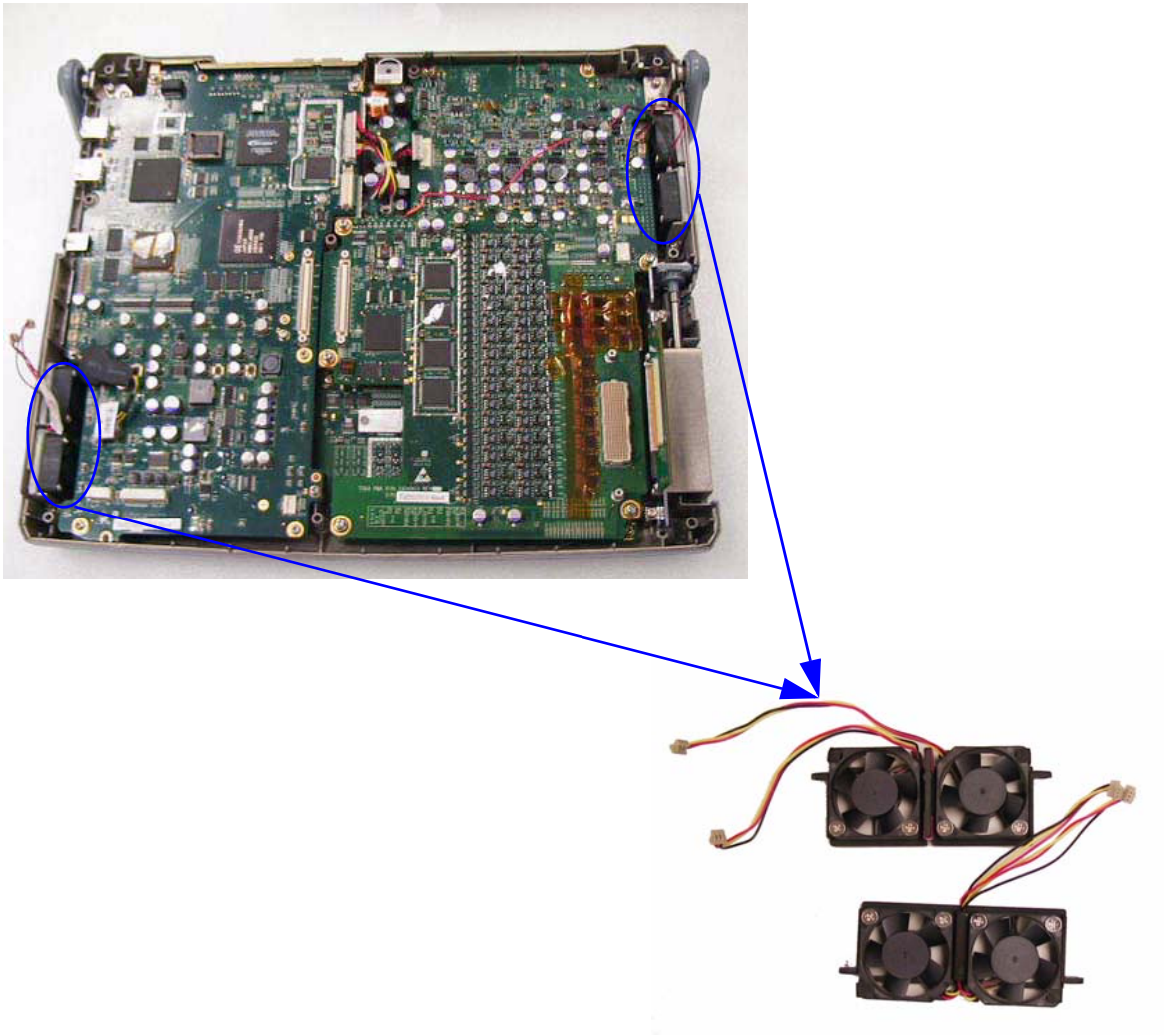


Figure 5-6 Left & Right Fans

The scanner contains the four fans at the following positions for producing an air flow.

- One fan assy: On the Left side for air flow path A.
- One fan assy: On the Right side for air flow path B.

Section 5-4
Common Service Platform

5-4-1 Introduction

The Service Platform contains a set of software modules that are common to all PC backend ultrasound and cardiology systems. The Common Service Platform will increase service productivity and reduce training and service costs.

5-4-2 Global Service User Interface (GSUI)

5-4-2-1 Internationalization

The user interface provided by the service platform is designed for GE personnel and as such is in English only. There is no multi-lingual capability built into the Service Interface.

5-4-2-2 Service Login

Select Utility/Config->Service. This button links the user to the service login screen.

Figure 5-7 Service Login Screen

5-4-2-3 Access / Security

The service interface has different access and security user levels. Each user is only granted access to the tools that are authorized for their use.

5-4-2-3 Access / Security (cont'd)

Table 5-2 Service Login User Levels

User Level	Access Authorization	Password
Operator	Authorized access to specified diagnostics, error logs and utilities. Same acquisition diagnostic tests as GE Service.	uls
Administrator		uls
External Service		gogems

Every access request, whether successful or not, will be logged into a service access log that is viewable to authorized users.

5-4-2-4 The usage for security cable

The ultrasound system equipped with Kensington security slot which is compatible with a Kensington security cable, refer toFigure 5-8 on page 5-11 .

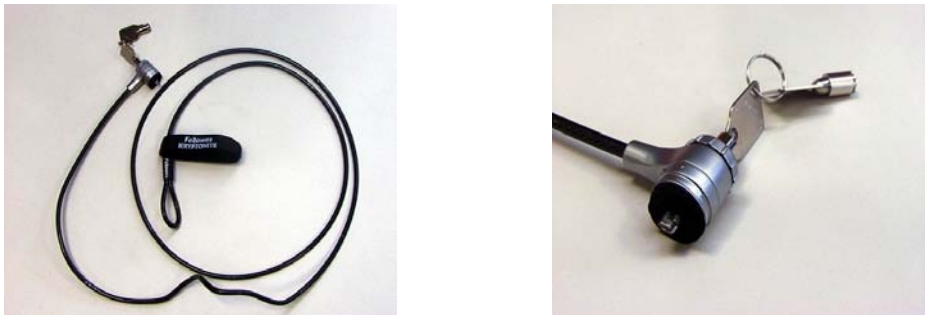


Figure 5-8 Kensington security slot

How to prevent unauthorized removal of the ultrasound system?

1.) Wrap the cable around the immovable object, refer to Figure 5-9 on page 5-11 ;
2.) Make sure and rotate the key to the right (unlocked position);
3.) Insert the lock into the Kensington security slot in the system side cover, refer to Figure 5-9 on page 5-11 ;
4.) Rotate the key to the left (locked position).
5.) For more information, visit www.kensington.com.

Figure 5-9 Kensington security slot and system

NOTE: *Full maintenance reboot should be selected after the service dongle is used on the system.*

5-4-3 Service Home Page

The navigation bar at the top of the screen allows the user to select from several tools and utilities.

Figure 5-10 Customer Service Home Page

5-4-4 Error Logs Tab

From the Error Logs Tab the Log Viewer displays four categories with pull-down sub-menus and an Exit selection. The Service Interface allows scanner logs to be viewed by all service users.

The log entries are color-coded to identify the error level severity at a glance.

Table 5-3 Log Entry Key

Severity	Error Level	Color Code
1	Information	Green
2	Warning	Blue
3	Error	Red

The Service Interface supports the transfer of these logs to local destinations such as the CD-ROM drive.

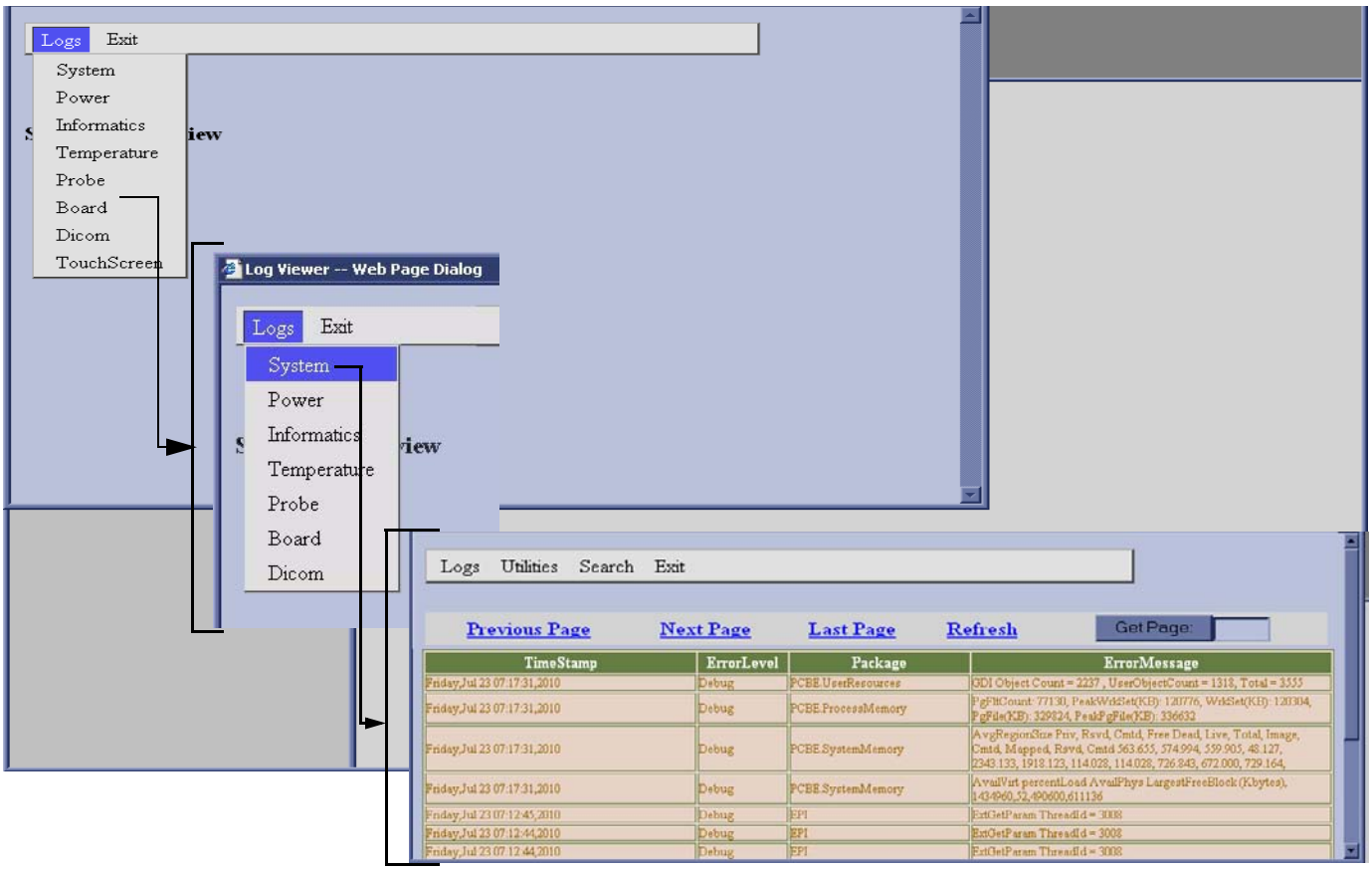


Figure 5-11 Log Viewer / Logs / Log Entries

5-4-4-1 Logs

The seven sub-menus of the Logs category are System, Power, Infomatics, Temperature, Probe, Board, and DICOM.

*NOTE: Figure 5-11 provides a graphical example of the log entries for the **System Logs**.*

Log table headings for the different logs are as follows:

- **System**

  Log entry headings include Time Stamp; Error Level; Package; and Error Message.

- **Power**

  Log entry headings include Time Stamp; Error Level; Package; and Error Message.

- **Infomatics**

  Log entry headings include TimeStamp, Revision, PtID, PtDOB, PtSex, PtWeight, PtHeight, ExamID, Exam Category, ExamCurDate, ExamStartTime, ExamEndTime, FreezeTime, TimeOfImageArchived, AccessionNumber, RefPhyName, ReadingPhyName, Operator, RoomNo, BodyPatternSelected, InstitutionName, ActiveModeTime, CalculationMade, CalculationTime, HelpUsage, ProductName, SystemSWRev, NoOfSWModules, SystemPowerOnTime, SystemIdleTime, NoOfBoards, ProbeChangedDate, ProbeChangedTime, ProbeChangedStatus, NoOfProbeSlots, NoOfProbes, ProbeID, ProbeSerialNumber, and ActiveExamProbes.

- **Temperature**

  Log entry headings include Time Stamp; Error Level; Package; CPU Internal Temp, TMST Process Temp, TMST Internal Temp, TMST Remote Temp, TX64 Process Temp, TX64 Internal Temp, TX64 Remote Temp, TMST 3.3V, TMST 5V, TMST 12V, TMST 1.2V, TMST 1.5V, TMST 1.8V, TX64 1.5V, TX64 1.8V, TX64 3.3V, TX 64 5V, TX649V, TX64 12V, TX 64 +THV, TX64-THV, TX64+SHV, and TX64-SHV.

- **Probe**

  Log entry headings include Time Stamp; Error Level; Package; Error Message; Severity; Revision; and three new labels that have not yet been named.

- **Board**

  Log entry headings include Time Stamp; Error Level; Package; Board; Severity; Revision and two new labels that have yet been named.

- **DICOM**

  Log entry headings include Time Stamp; Error Level; Package; and Error Message.

- **Touch Screen (only for LOGIQ e R5.2.x)**

  Log entry headings include Touch Screen operation events.

5-4-4-2 Utilities

The two sub-menus of the **Utilities** category are Plot Log, and Plot Page.

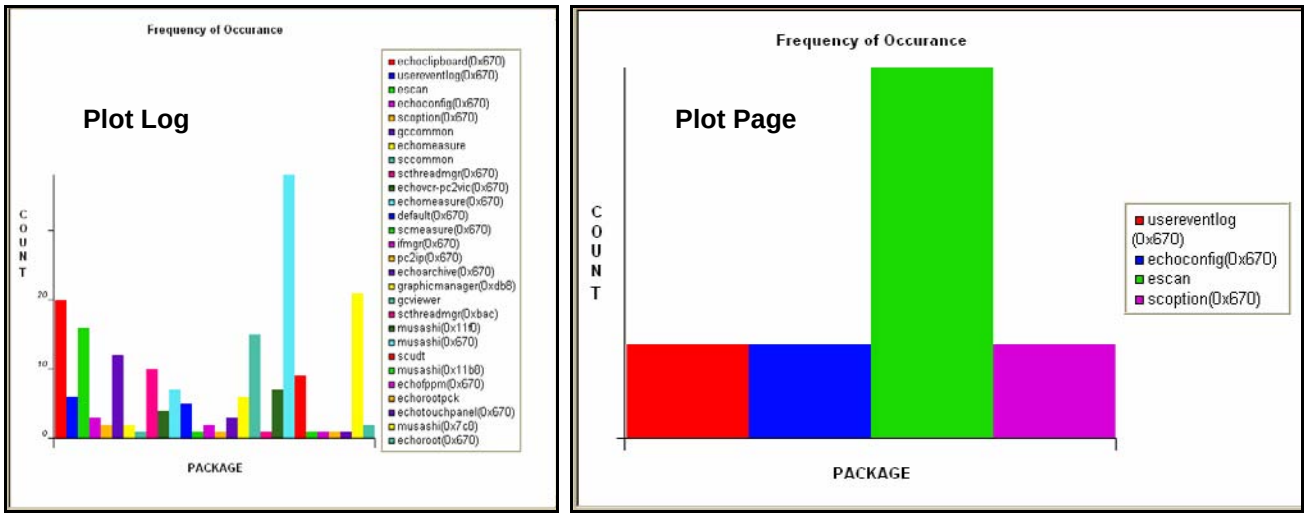


Figure 5-12 Utilities Sub-Menus

- **Plot Log**

  Allows for the color coded plot of all Log contents with the package on the ‘x’ axis and incident count on the ‘y’ axis.

- **Plot Page**

  Allows for the color coded plot of all Page contents with the package on the ‘x’ axis and incident count on the ‘y’ axis.

5-4-4-3 Search

On the Text Search sub-menu of the **Search** category, users enter case-sensitive text they wish to find. This filter field works well for filtering the Sys log file for the word “fail”.

Figure 5-13 Search Sub-Menu

5-4-4-4 Exit

The sub-menu, **Exit Log Viewer**, returns the user to the Service Desktop home page.

Figure 5-14 Exit Log Sub-Menu

5-4-5 Diagnostics

Detailed **Diagnostic** information is found in Chapter 7.

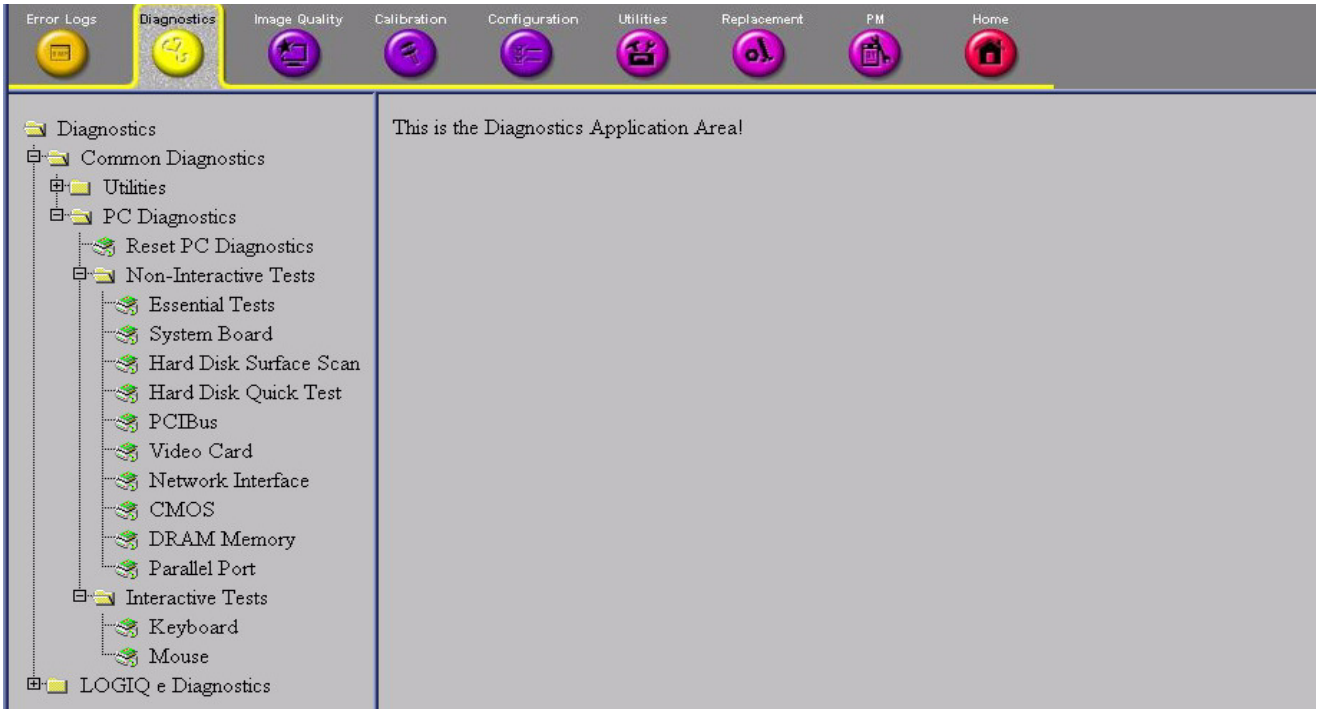


Figure 5-15 User Diagnostic Page

5-4-5-1 Diagnostics Execution

Diagnostic tests are executable by both local and remote users. The Service Platform provides top-level diagnostic selection based on the user's level and login access permissions. Remote access will require disruptive diagnostic permissions to run Acquisition diagnostics.

5-4-5-2 Diagnostic Reports

Diagnostic tests return a report to the Service Platform. The platform retains the report and allows for future viewing of the diagnostic logs.

5-4-6 Image Quality

The **Image Quality** page is intended to contain tools for troubleshooting image quality issues.

Figure 5-16 Image Quality Page

5-4-7 Calibration

The **Calibration** page is intended to contain the tools used to calibrate the system.

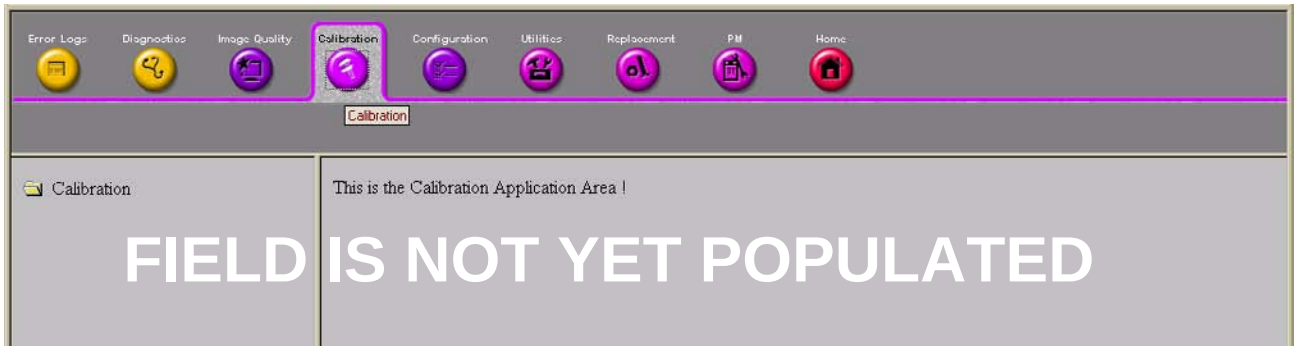


Figure 5-17 Calibration Page

5-4-8 Configuration

The **Configuration** page is intended to be used to setup various configuration files on the system.

The Service Platform is the access and authorization control for remote access to the configuration subsystem.

The enable/disable of software options can be done from this Configuration page.

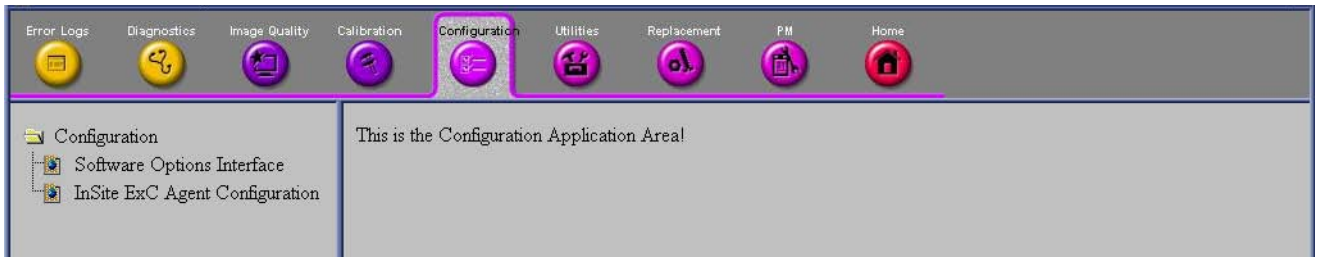


Figure 5-18 Configuration Page

5-4-9 Utilities

The **Utilities** page contains several miscellaneous tools.

5-4-10 Replacement

The **Replacement** page is intended to contain the tools used to track replacement parts used in the system.

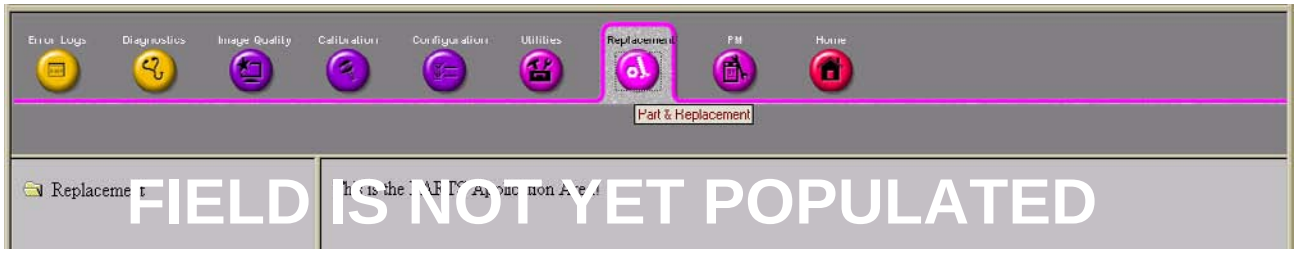


Figure 5-19 Part Replacement Page

5-4-11 PM

The **PM** page is intended to contain the tools used in periodic maintenance of the system.

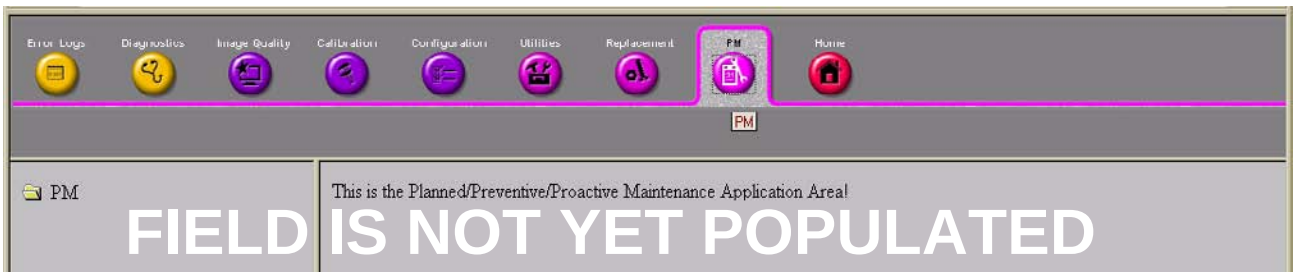


Figure 5-20 Planned Maintenance Page

Chapter 6
Service Adjustments

Section 6-1
Overview

6-1-1 Purpose of this chapter 6

This section describes how to test and adjust the scanner. These tests are optional. You may use them to check the system for errors.

Table 6-1 Contents in chapter

Section	Description	Page Number
6-1	Overview	6-1
6-2	Monitor Adjustments	6-2

Section 6-2
Monitor Adjustments

6-2-1 Adjustments Procedures

To adjust the brightness and volume:

1.) Press Ctrl + brightness key together (up/down), located on the keyboard.

1.) Press Ctrl + volume key together (left/right), located on the keyboard.

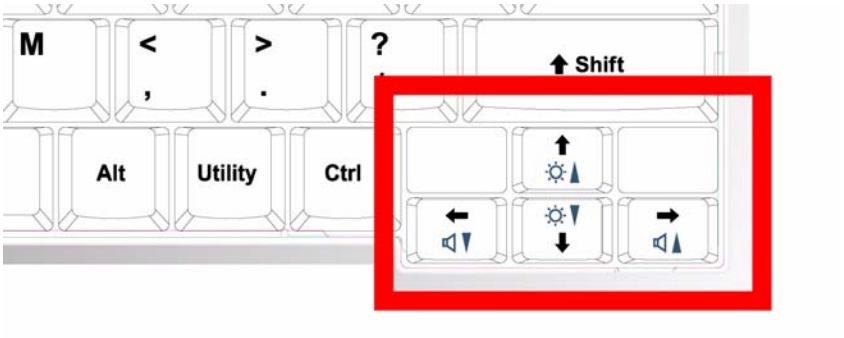


Figure 6-1 LCD Monitor

Chapter 7
Diagnostics/Troubleshooting

Section 7-1
Overview

7-1-1 Purpose of Chapter 7

This section describes how to setup and run the tools and software that help maintain image quality and system operation. Very basic host, system and board level diagnostics are run whenever power is applied. Some Service Tools may be run at the application level. However most software tests are required.

Table 7-1 Contents in Chapter 7

Section	Description	Page Number
7-1	Overview	7-1
7-2	Gathering Trouble Data	7-2
7-3	USB Quick Save	7-4
7-4	Screen Captures	7-6
7-5	Global Service User Interface (GSUI)	7-9
7-6	Common Diagnostics	7-12
7-7	Network and Insite II Configuration	7-15

Section 7-2
Gathering Trouble Data

7-2-1 Overview

There may be a time when it would be advantageous to capture trouble images and system data (logs) for acquisition to be sent back to the manufacturer for analysis. There are different options to acquire this data that would give different results.

7-2-2 Collect Vital System Information

The following information is necessary in order to properly analyze data or images being reported as a malfunction or being returned to the manufacturer:

- Product Name = LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

From the *Utility>System>About* screen:

Applications Software

- Software Version
- Software Part Number

System Image Software

- Image Revision
- Image Part Number

7-2-3 Collect a Trouble Image with Logs

If the system should malfunction, press the Alt-D keys simultaneously. This will collect a screen capture of the image monitor, system presets and the following logs:

- Keyboard Shadow Log
- Error Logs
- Crash Log
- Power Supply
- Temperature

NOTE: Power Supply and Temperature logs are not currently being updated by the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e .

This Alt-D function is available at all times.

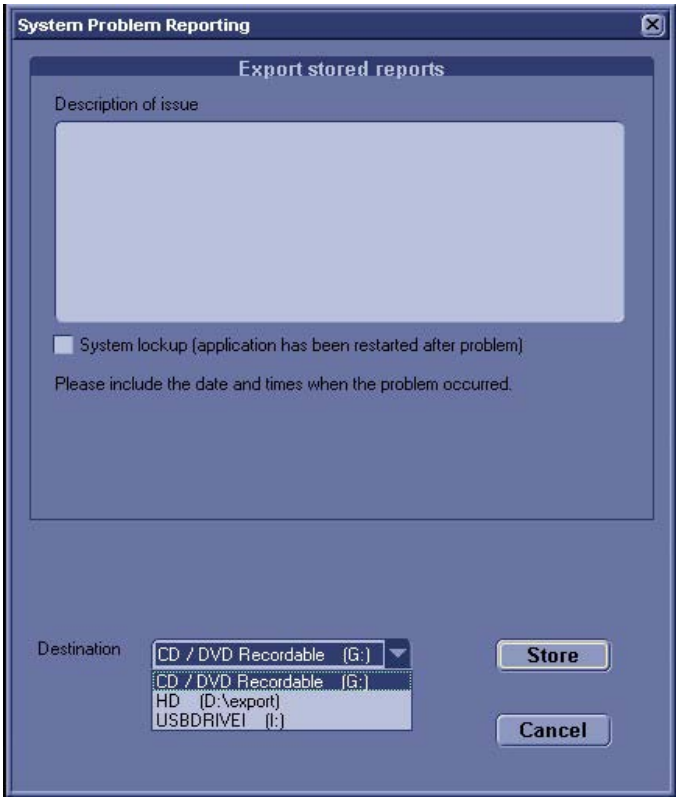


Figure 7-1 ALT-D Dialog Box

When Alt-D is pressed, a menu box appears that allows for:

- A place to enter a description of the problem
- A choice to store to a pre-formatted DVD-R, RD (Removable Disk) or to the *Export* directory D: export.

The subsequent file is compressed and time stamped. The screen capture is a bitmap which eliminates the possibility of artifacts from compression.

Section 7-3
USB Quick Save

7-3-1 Overview

There may be times when the customer or field engineer will want to directly save images into USB memory. This is accomplished by saving individual Cine clips (moving images- avi format) or still images (jpg format) directly to a USB memory disk by pressing a Print Key.

For LOGIQ e, LOGIQ e Vet and LOGIQ i, the P3 key is the factory default print key to accomplish the USB Quick Save; for Vivid e, the P2 key is the factory default print key to accomplish the USB Quick Save. However, the default is for the Image Area only or the customer may have customized the default Key function.

Here, take LOGIQ e for example and the P3 key is the factory default print key to accomplish the USB Quick Save.

7-3-2 Check and Record the P3 Key Function

Check the function of the default Key in the event that the customer may have made some customized settings.

1.) Click *Utility/Config* on the keyboard.
2.) Select *Connectivity* from the Utilities Menu.
3.) Select the *Buttons* tab on the Connectivity screen.
4.) In the *Physical Print Buttons* field, select Print3 key.

The Connectivity/Buttons Screen will be displayed like the one shown in Figure 7-2 on page 7-4 .

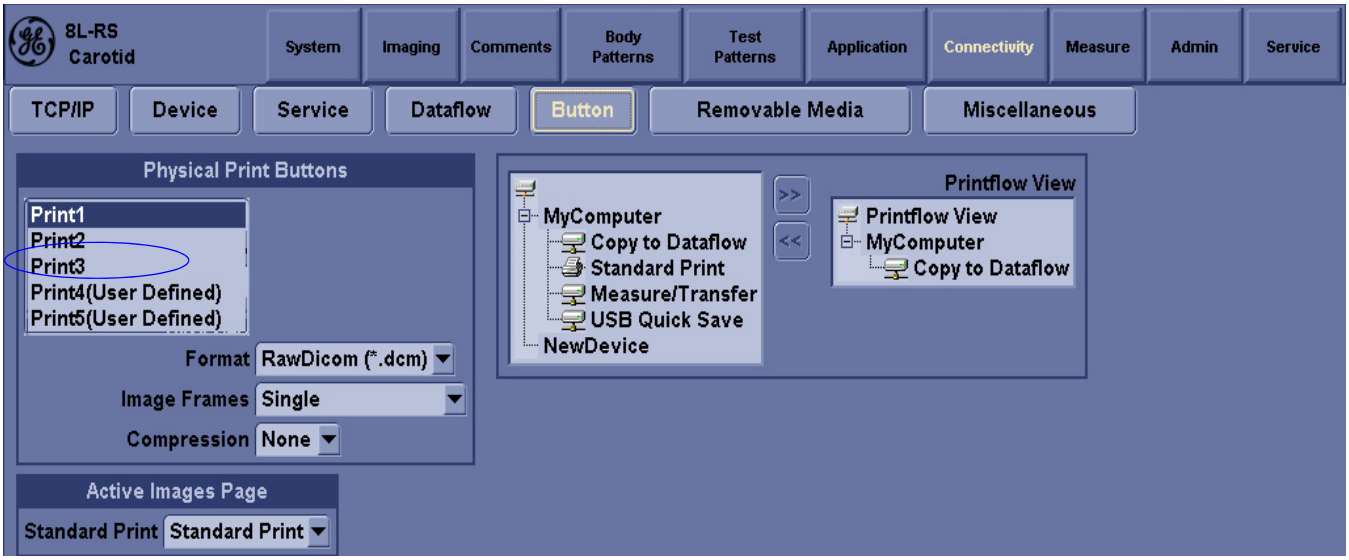


Figure 7-2 Buttons Set Up Screen

P3 is the factory default USB Quick Save key. If it is not set to Image Area, proceed to step 5 to record the customer's customized settings.

7-3-2 Check and Record the P3 Key Function (cont'd)

5.) In the Destinations section, record the service that is displayed.

6.) In the *Physical Print Buttons* section, record the parameters related to the service.

7-3-3 Setting the P3 Key to USB Quick Save

If the P3 Key is not set to USB Quick Save:

1.) While on the Connectivity screen, with the Buttons tab displayed, go to the *Destinations* list.

2.) From the list select *USB Quick Save*. Press [>>] to add the selection to the *Printflow View* section.

3.) Ensure that the *Physical Print Buttons* section for capture Area is set to Image Area and No Image Compression.

4.) The P3 Key should now be set up for USB Quick Save, sending the images directly to the USB memory.

Section 7-4
Screen Captures

There may be times when the customer or field engineer will want to capture a presentation on the screen. This is accomplished by first saving the image(s) to the clipboard using a Print Key.

There's no factory default print key to accomplish a secondary screen capture. However, customer may have customize any of Print Key function. Here, take Print1 button for example, for LOGIQ e, LOGIQ e Vet, LOGIQ i, Print1, Print 2 and Print3 are the same, for Vivid e, Store, Print1 and Print2 are the same. Therefore, screen capture should involve the following steps:

1.) Check and record any custom settings for the Print1 button.
2.) Set the Print1 button to Whole Screen, Secondary Capture.
3.) Capture the required screens to the Hard Disk Drive or DVD-R.
4.) Restore the Print1 button to it's original settings.

7-4-1 Check and Record the P1 Key Function

Check the function of the Print1 Key in the event that the customer may have made some custom settings.

1.) Click *Utility/Config* on the keyboard.
2.) Select *Connectivity* from the Utilities Menu.
3.) Select the *Buttons* tab on the Connectivity screen.
4.) In the *Physical Print Buttons* field, select Print1.

The Connectivity/Buttons Screen will be displayed like the one shown in Figure 7-2 on page 7-4 .

If P1 is not set to Whole Screen, as shown in Figure 7-2, proceed to step 5 to record the customer's customized settings.

5.) In the Destinations section, record the service that is displayed.
6.) In the *Physical Print Buttons* section, record the parameters related to the service.

7-4-2 Setting the P1 Key to Screen Capture

If the P1 Key is not set to screen capture:

1.) While on the Connectivity screen, with the Buttons tab displayed, go to the *Destinations* list.
2.) From the list select *Copy To Dataflow*. Press [>>] to add the selection to the *Printflow View* section.
3.) Ensure that the *Physical Print Buttons* section for capture Area is set to Whole Screen, secondary Capture and No Image Compression.
4.) The P1 Key should now be set up for whole screen capture, sending the screens to the image buffer (clipboard).

7-4-3 Capturing a Screen

The following is a generic process to capture any screen from the scanner:

1.) Navigate to and display the image/screen to be captured.
2.) Press **P1**. This will place a snapshot of the screen on the "clipboard" displayed at the bottom of the scan image display.

7-4-3 Capturing a Screen (cont'd)

Figure 7-3 Select Image to Capture

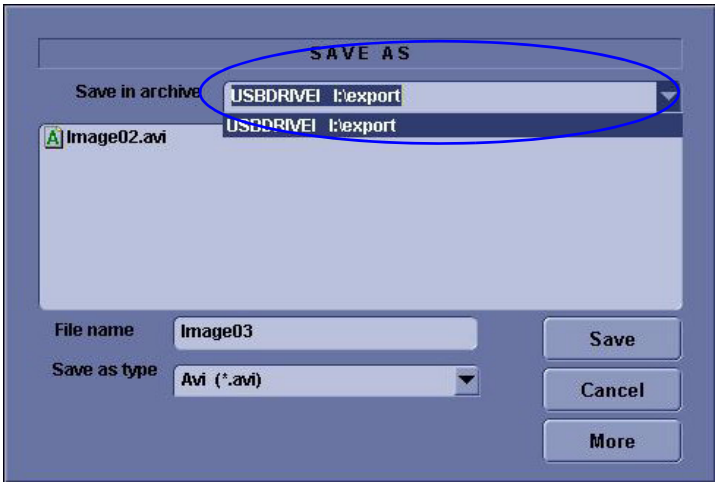
3.) Click FREEZE to unfreeze the image to view the image screen and the snapshots displayed on the bottom.

4.) Highlight the snapshot to be stored.

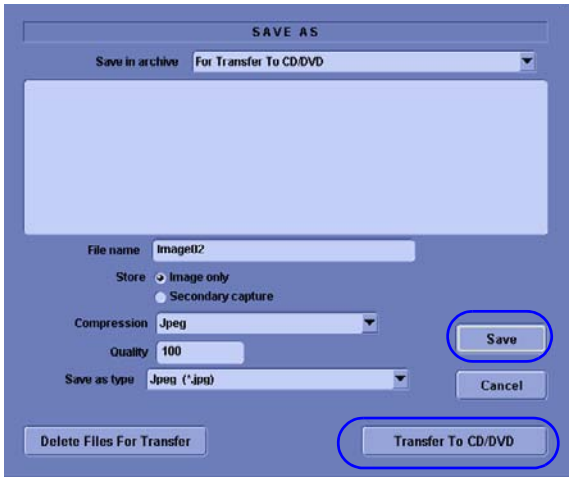
5.) Select Menu on the right side of the image screen, then highlight and select SAVE AS.

Figure 7-4 Menu > Save As

7-4-3 Capturing a Screen (cont'd)



For LOGIQ e R4.x.x, LOGIQ i R4.x.x, Vivid e R4.x.x



For LOGIQ e R5.x.x, R6.x.x, R7.x.x, LOGIQ i R5.x.x, Vivid e R5.x.x,

Figure 7-5 Save Dialog Box

6.) A Save dialog box will be opened.

- For LOGIQ e R4.x.x, LOGIQ i R4.x.x, Vivid e R4.x.x, choose *d:\export folder* as the archive location to save the image on the DVD-R.
- For LOGIQ e R5.x.x, LOGIQ e R6.x.x, LOGIQ e R7.x.x, LOGIQ i R5.x.x, Vivid e R5.x.x, Vivid e R6.x.x, select *Save* first, and Select *Transfer to CD/DVD* to save the image on the CD/DVD.

7-4-4 Reset the P1 Key to Customer's Functionality

If the customer had programmed the P3 Key to a function other than screen capture, restore that functionality recorded in section 7-4-1 on page 6. Refer to Figure 7-2.

1.) Click *Utility/Config* on the keyboard.
2.) Select *Connectivity* from the Utilities Menu.
3.) Select the *Buttons* tab on the Connectivity screen.
4.) In the *Physical Print Button* field, select Print1.
5.) In the *Destinations* list, select the service(s) recorded in step 5, Section 7-4-1.
6.) In the *Physical Print Buttons* section, select the parameters related to the service recorded in step 6, Section 7-4-1.

Section 7-5
Global Service User Interface (GSUI)

7-5-1 Enter global service user interface

1.) Press Utility/Config - Service, see Figure 7-6 on page 7-9 .

Figure 7-6 system Service button

1.) Select GE Service in option of User Level of GEMS Service Home page and input correct password, press OK button. See Figure 7-7 on page 7-9 .

Figure 7-7 Service Login Page

7-5-2 Active Diagnostic Function

2.) Choose Diagnostic in Global Service Interface to active diagnostic functions, choose options to activate various functions correspondingly.

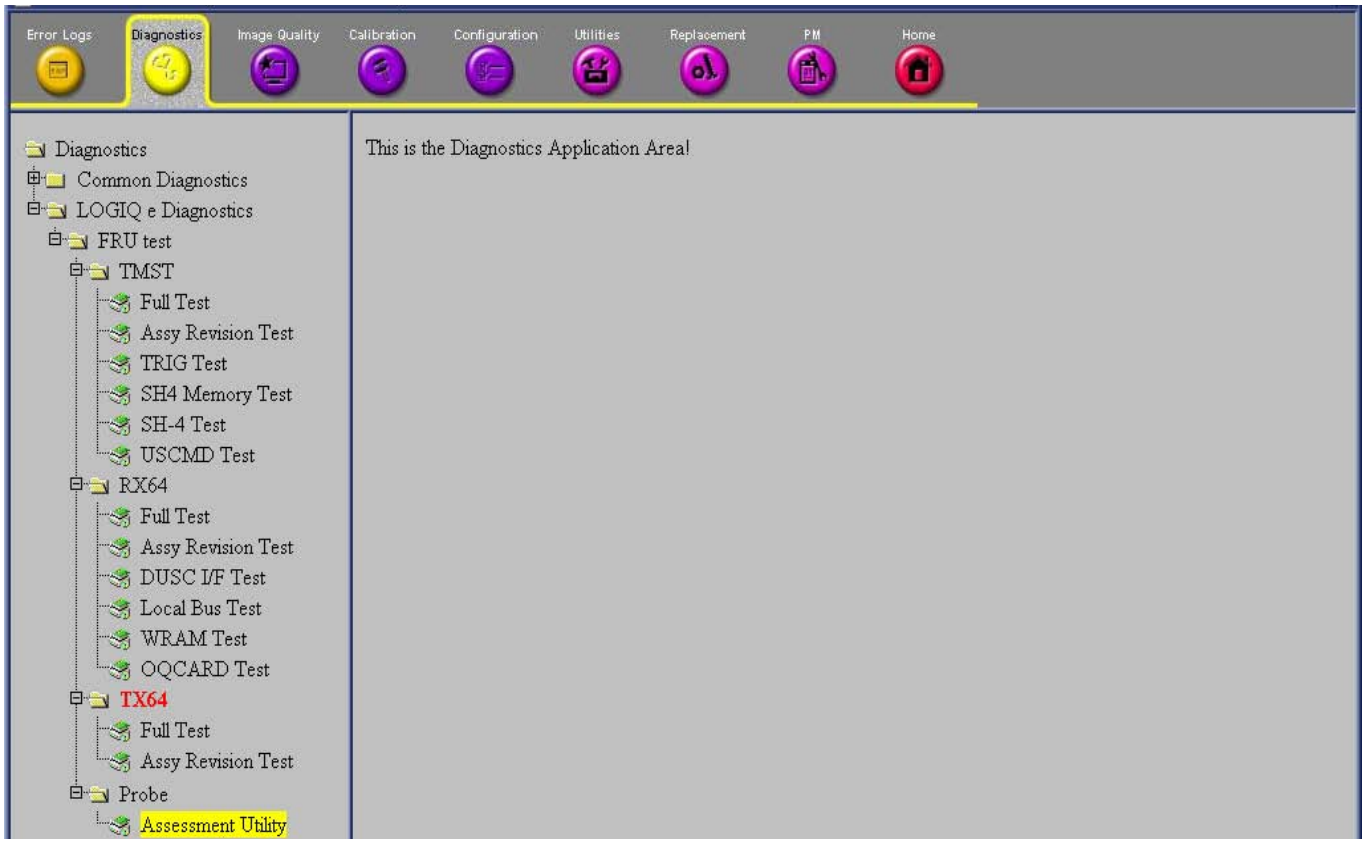


Figure 7-8 Active Diagnostic Function

7-5-3 Control Frame

Contains the user interface elements used for:

- Diagnostic control, and
- Operator feedback

7-5-3-1 Button

This button has two modes each with appropriate text:

- Execute - to start the diagnostic, and
- Abort - to stop a diagnostic

The button can also be disabled.

7-5-3-2 Loop Count

This is an editable text field that will only accept numeric values with 4 digits or less. When the button is configured as an “execute” button and pressed, the loop count field will be queried to determine the number of times to execute the diagnostic.

7-5-3-3 Progress Indicator

Displays a graphical progress indication to the user.

7-5-3-4 Short Text Message

Displays either a starting message or aborting message, as well as the diagnostic completion status.

7-5-3-5 Background Color

Initially gray, the Control Frame background color changes upon completion of a diagnostic to indicate completion status.

- Fail = Red
- Pass = Green
- Neither pass nor fail = Set back to Gray (for example, final code status is Aborted).

Section 7-6
Common Diagnostics

7-6-1 Utilities

Provides two selections:

7-6-1-1 Disruptive Mode

Allows you to enable or disable disruptive mode troubleshooting.

7-6-1-2 System Shutdown

Allows for system shutdown from the diagnostic menu. Select to *Restart System* or *Shutdown System.* Also, select to retain Disruptive Mode or Not.

After submitting to restart or shutdown a confirmation screen gives one last chance to confirm or cancel the request.

7-6-2 PC Diagnostics (Non-Interactive Tests)

7-6-2-1 Essential Tests

7-6-2-2 System Board

7-6-2-3 Hard Disk Drive Surface Scan

7-6-2-4 Hard Disk Drive Quick Test

7-6-2-5 PCIBus

7-6-2-6 Video Card

7-6-2-7 Network Interface

7-6-2-8 CMOS

7-6-2-9 DRAM Memory

7-6-2-10 Parallel Port

7-6-3 PC Diagnostics (Interactive Tests)

7-6-3-1 Keyboard Test

7-6-3-2 Mouse Test

7-6-3-3 Audio Card Test (only for LOGIQ e R5.2.x and R6.x.x)

7-6-4 Restart the system after diagnostics

Always shutdown the system and reboot after a diagnostics session.

Section 7-7
Network and Insite II Configuration

7-7-1 Network Configuration

7-7-1-1 Wire-LAN Network

1.) Connect system with network.

2.) Press Utility/Config -> Connectivity -> TCPIP, in IP Settings window check the Enable DHCP box. In Network Speed box, choose the proper speed available.

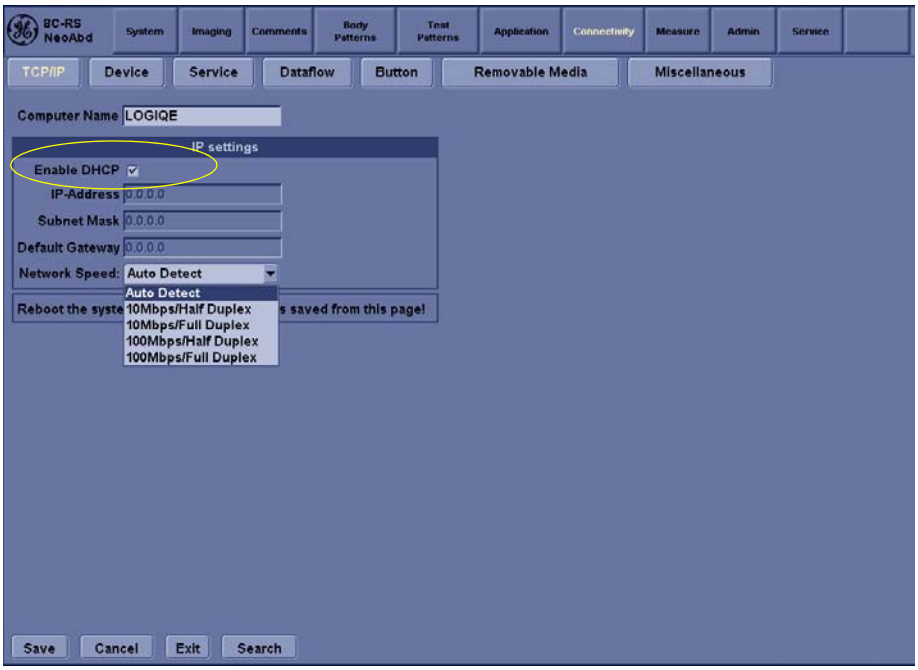


Figure 7-9 Enable DHCP

7-7-1-1 Wire-LAN Network (cont'd)

NOTE: If user want to setup static IP address, uncheck Enable DHCP option, input static address in IP-Address box, Subnet Mask and Default Gateway box. In Network Speed box, choose the proper speed available.

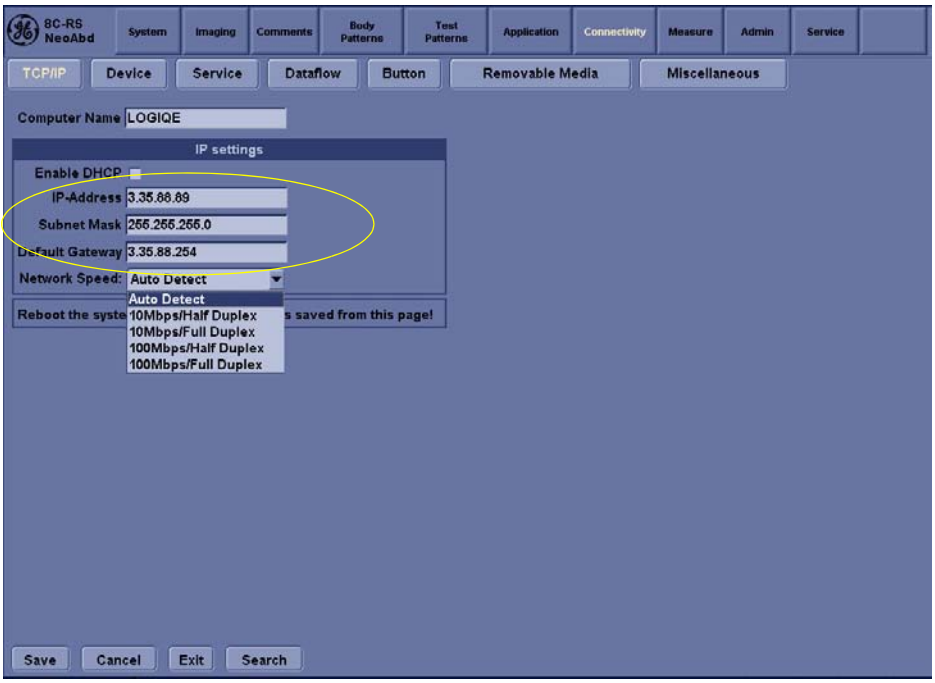


Figure 7-10 Input static address

3.) Click Save, in popped-up dialog choose Ok.

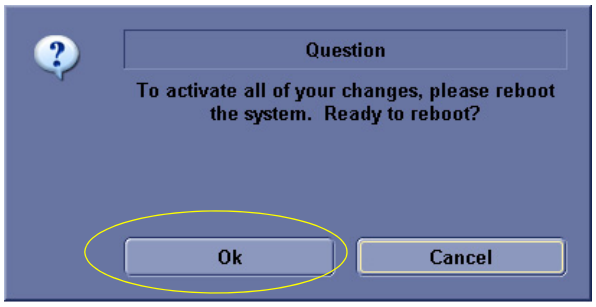


Figure 7-11 Save and reboot inquiry dialog

4.) After reboot, the network icon at the left bottom of screen turns green.

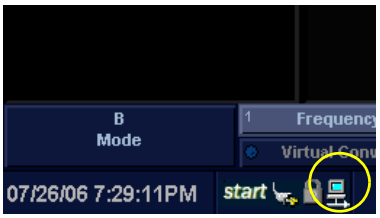


Figure 7-12 Network icon

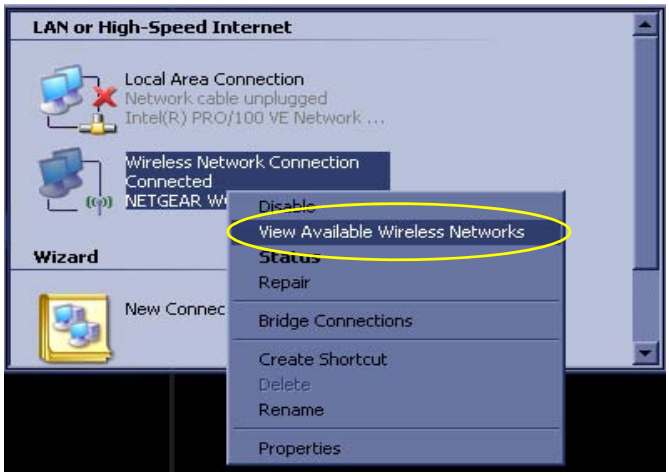
7-7-1-2 Wireless LAN Network

1.) Connect wireless LAN card with system.

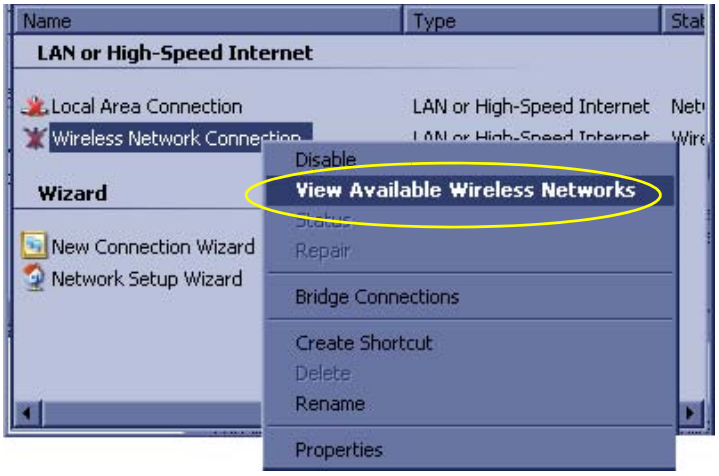
2.) Click Start at the left bottom of screen, and select Network Connections.

Figure 7-13 Start menu

3.) In the pop-up window choose Wireless Network Connection. Click it with cursor key, then select View Available Wireless Networks.



For LOGIQ e R5.x.x/R6.x.x/R7.x.x, Vivid e R5.x.x/R6.x.x, LOGIQ i R5.x.x

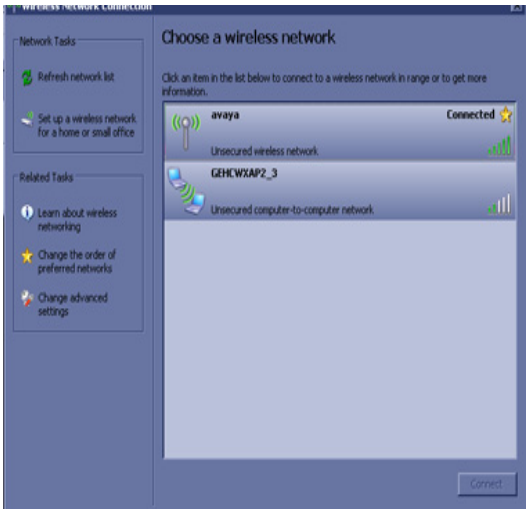


For LOGIQ e R4.x.x, LOGIQ i R4.x.x, Vivid e R4.x.x

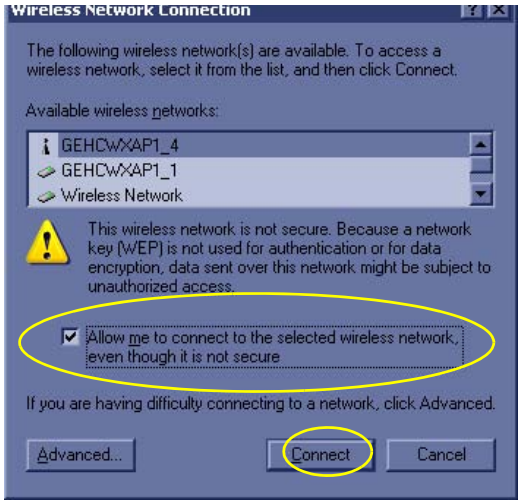
Figure 7-14 Wireless Network Connection configuration

7-7-1-2 Wireless LAN Network (cont'd)

4.) The Wireless Network Connection dialog box displays. Select the proper wireless network in Available wireless networks window, check the Allow me to connect... box, and click Connect.



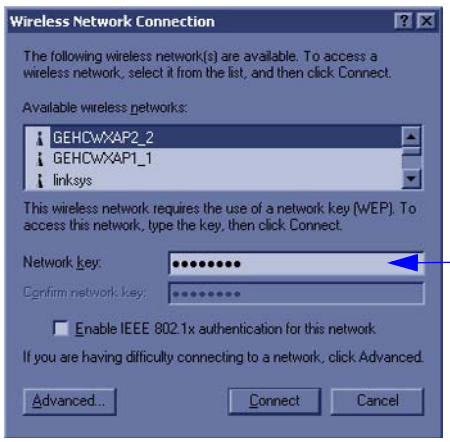
For LOGIQ e R5.x.x/R6.x.x/R7.x.x, Vivid e R5.x.x/R6.x.x
LOGIQ i R5.x.x


Wireless Network Connection
The following wireless network(s) are available. To access a wireless network, select it from the list, and then click Connect.
Available wireless networks:
GEHCWXAP1_4
GEHCWXAP1_1
Wireless Network
This wireless network is not secure. Because a network key (WEP) is not used for authentication or for data encryption, data sent over this network might be subject to unauthorized access.
Allow me to connect to the selected wireless network, even though it is not secure
If you are having difficulty connecting to a network, click Advanced.
Advanced...
Connect
Cancel

For LOGIQ e R4.x.x, LOGIQ i R4.x.x, Vivid e R4.x.x

Figure 7-15 Wireless Network Connection dialog box

NOTE: If an encrypted network has been selected, input Network key in Wireless Network Connection dialog box displayed, and click Connect.


Wireless Network Connection
The following wireless network(s) are available. To access a wireless network, select it from the list, and then click Connect.
Available wireless networks:
GEHCWXAP2_2
GEHCWXAP1_1
linksys
This wireless network requires the use of a network key (WEP). To access this network, type the key, then click Connect.
Network key:
Confirm network key:
Enable IEEE 802.1x authentication for this network
If you are having difficulty connecting to a network, click Advanced.
Advanced...
Connect
Cancel

Type network key here.

Figure 7-16 Network key input

5.) The network icon at the left bottom of screen turns green.

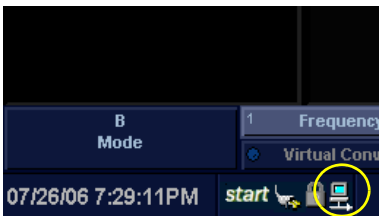


Figure 7-17 Network icon

NOTE: To manually configure a wireless network, the involvement of the IT department is mandatory.

7-7-2 Insite II Configuration

6.) Enter global service user interface, and log in as GE Service. See section 7-5-1 on page 9.

7.) To use **Pilot Server**, on Configuration page, choose Questra Agent Configuration in left column. Select Advanced Configuration, then choose "Others" as server type, and manually input pilot address, and click SAVE.

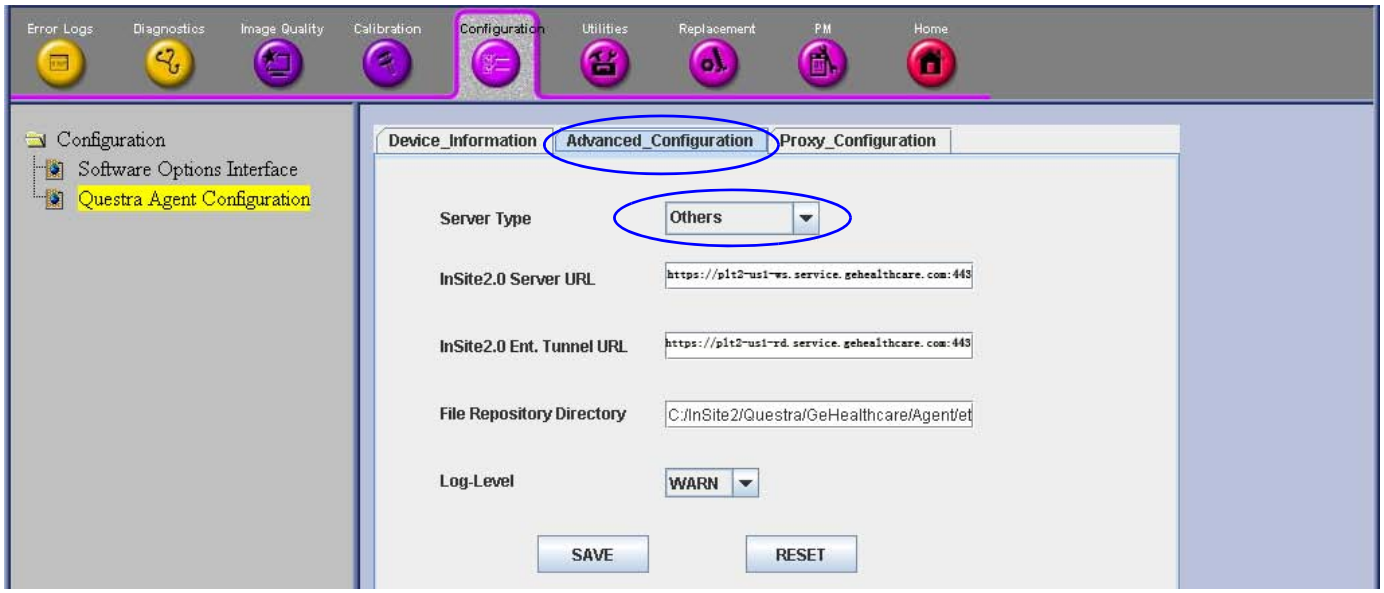


Figure 7-18 Advanced_Configuration page (out of GE network)

NOTE: *If system is within GE network, choose Development as server type, and do not need step 9.)* enter Proxy Server address.

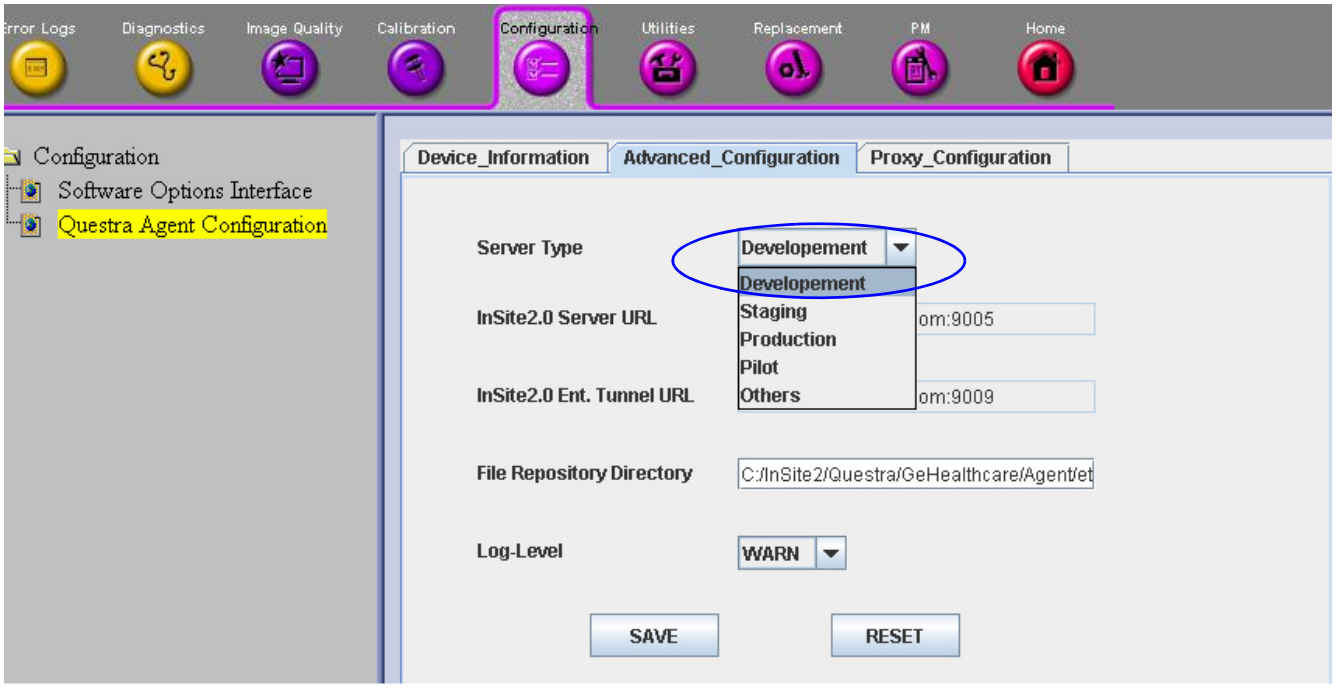


Figure 7-19 Advanced_Configuration page (within GE network)

7-7-2 Insite II Configuration (cont'd)

8.) Change to Device Information page, enter Device and Serial Number as the serial number of that system, then press Modify Device Configurations.

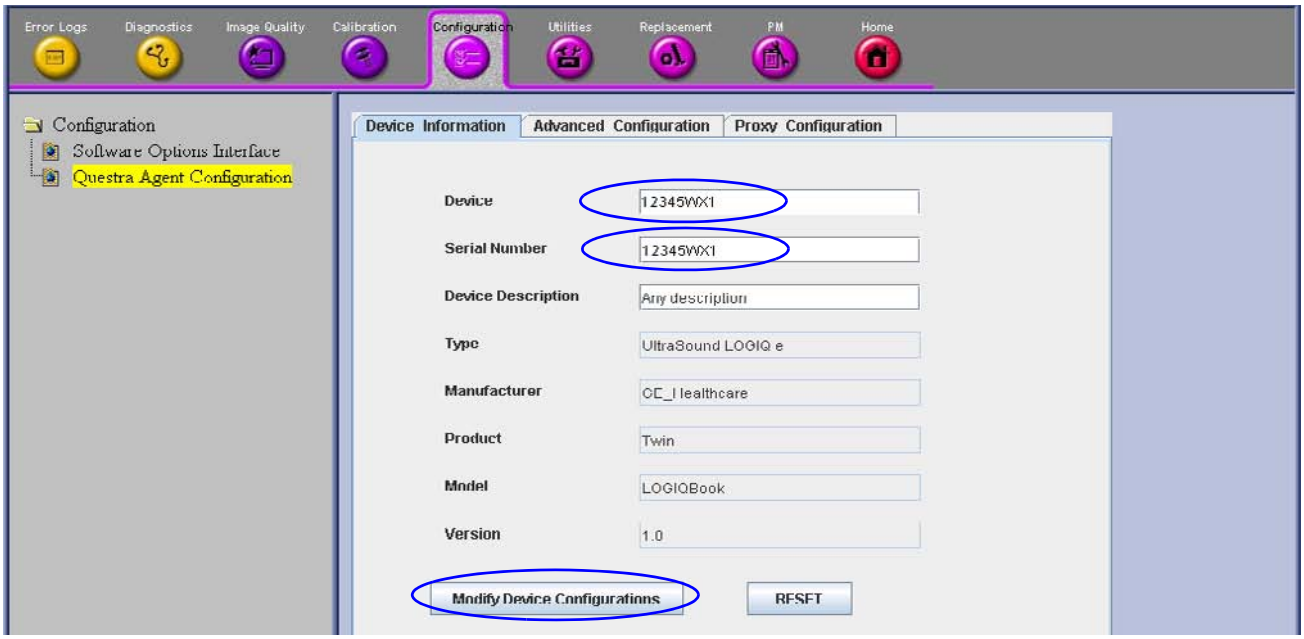


Figure 7-20 Device_Information page

NOTE: The Device name and Serial Number entered should be unique on server. It can be read from the rating plate label.

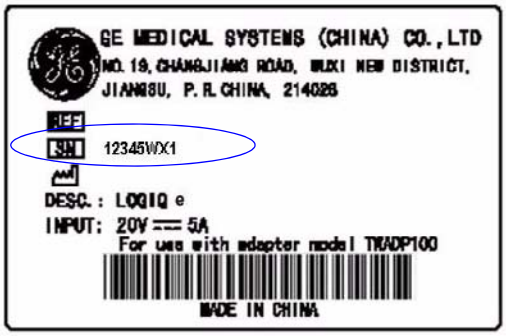

GE MEDICAL SYSTEMS (CHINA) CO., LTD
NO. 19, CHANGJIANG ROAD, WUXI NEW DISTRICT,
JIANGSU, P. R. CHINA, 214026
SN
12345WX1
DESC.: LOGIQ e
INPUT: 20V ⎓ 5A
For use with adapter model TYADP100
MADE IN CHINA

Figure 7-21 Rating plate label

7-7-2 Insite II Configuration (cont'd)

9.) Change to Proxy_Configuration page, enter Proxy Server Address as 3.20.128.6 and Proxy Server Port as 88, then press SAVE.

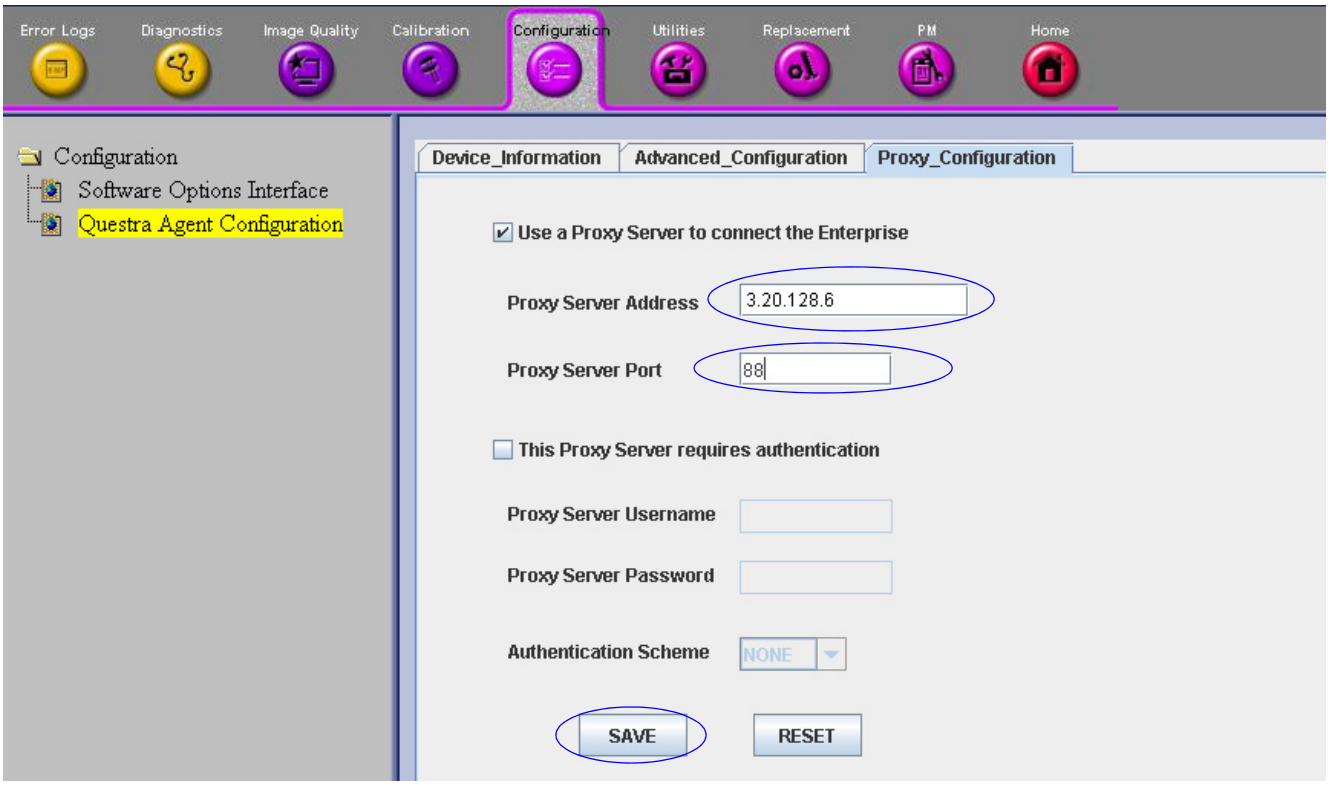


Figure 7-22 Proxy_Configuration page

7-7-2 Insite II Configuration (cont'd)

10.) Change to Diagnostics page. Enable Disruptive Mode at Service side by pressing Yes.

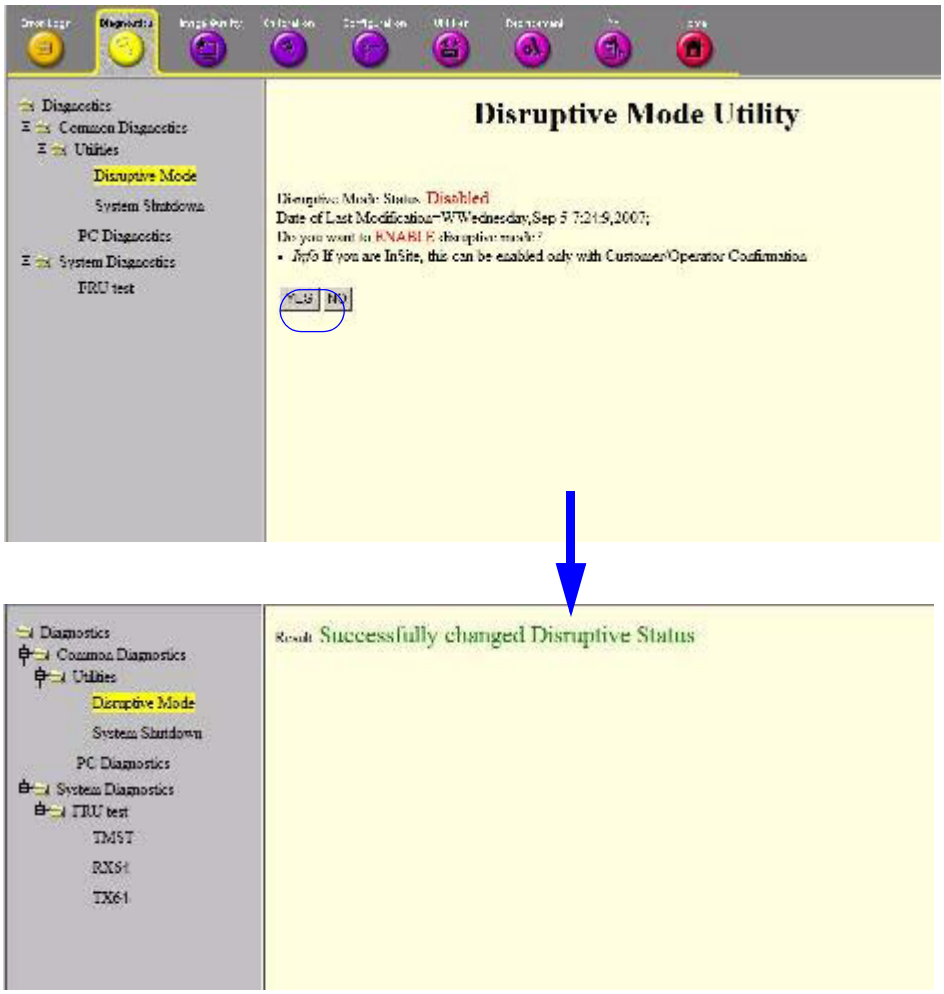


Figure 7-23 Enable Disruptive Mode

11.) Customer will receive a request of Service side, click Yes to accept.

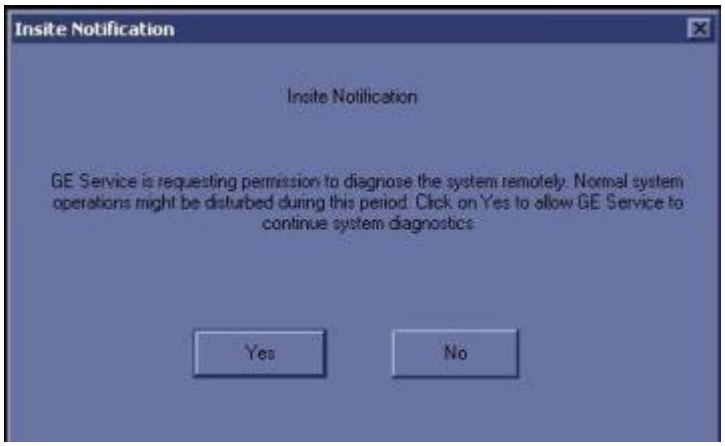

Insite Notification
Insite Notification
GE Service is requesting permission to diagnose the system remotely. Normal system operations might be disturbed during this period. Click on Yes to allow GE Service to continue system diagnostics
Yes
No

Figure 7-24 Accept requirement of Service

7-7-2 Insite II Configuration (cont'd)

12.) Service can do Remote Diagnostics successfully.

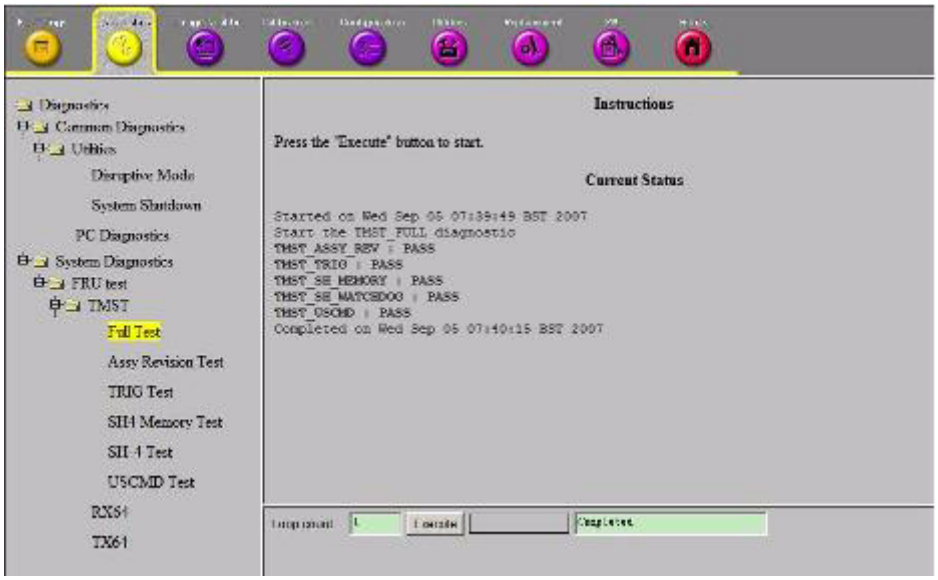


Figure 7-25 Remote Diagnostic successful

13.) Press power switch, and choose Full Maintenance Reboot to reboot system.

Figure 7-26 Full Maintenance Reboot window

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x)

1.) Enter global service user interface, and log in as GE Service. See section 7-5-1 on page 9.

2.) On Configuration page, select Insite ExC Agent Configuration in the left column, fill in the information in Agent Configuration, choose “PPODUCT” as Enterprise server in Advanced Configuration, please keep the default settings for other items, then click Submit Changes.

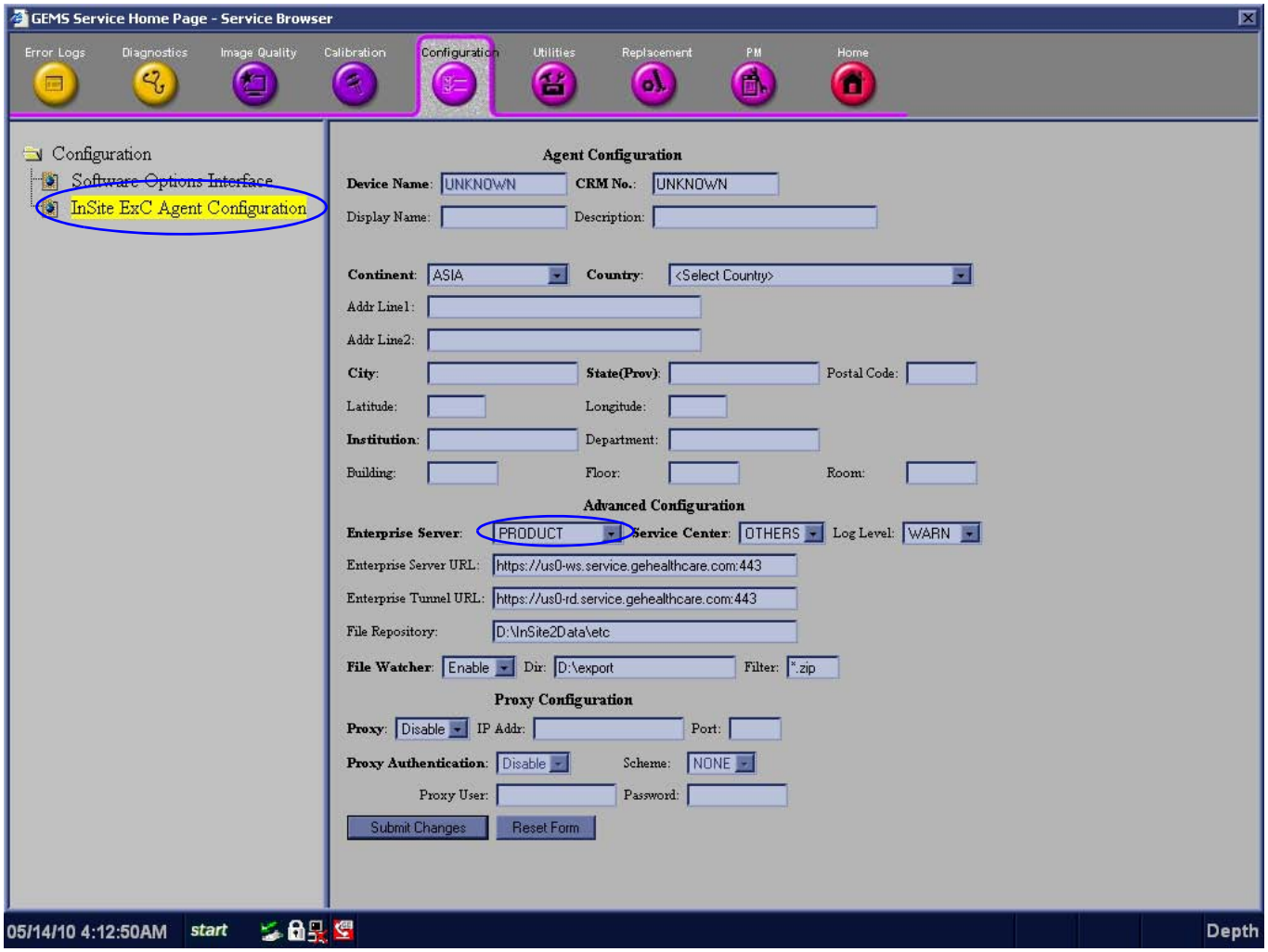


Figure 7-27 Choose Enterprise server

*NOTE: The **BOLD** items can not be left blank.*

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

3.) Set Disruptive Mode Status as **Enabled**. Change to Utilities page. select Disruptive Mode in the left column, Check whether the Disruptive Mode Status is **Enabled**, if not, click Yes to change the Disruptive Mode Status as **Enabled**. See Figure 7-28 on page 7-25 .

Figure 7-28 Device_Information page

There is another way to Set Disruptive Mode Status as **Enabled**. Click Insite Icon in system status bar, choose **Connect clinical Lifeline**, the Insite Icon will change to RED, do not need to change if the insite icon is already RED. See Figure 7-29 on page 7-25 .

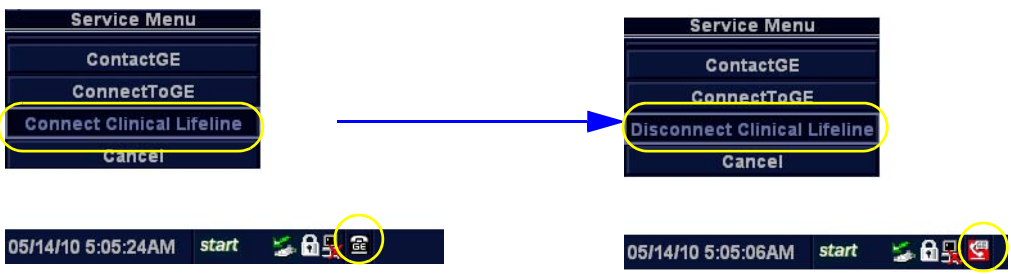


Figure 7-29 Set Disruptive Mode Status

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

4.) Customer will receive a request of Service side, click Yes to accept. See Figure 7-30 on page 7-26

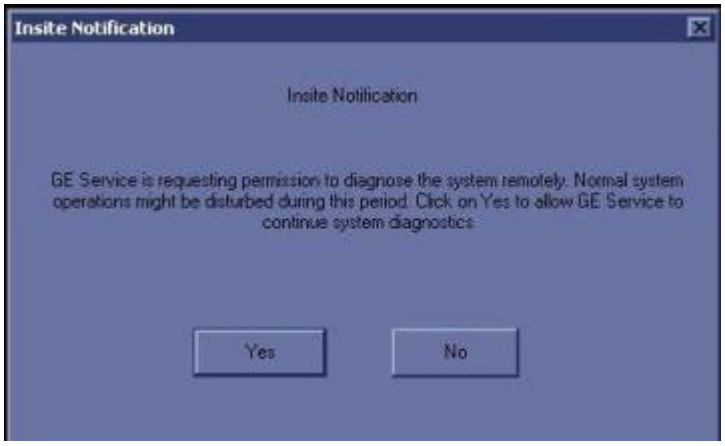

Insite Notification
Insite Notification
GE Service is requesting permission to diagnose the system remotely. Normal system operations might be disturbed during this period. Click on Yes to allow GE Service to continue system diagnostics
Yes
No

Figure 7-30 Accept requirement of Service

5.) Service can do Remote Diagnostics successfully. See Figure 7-31 on page 7-26

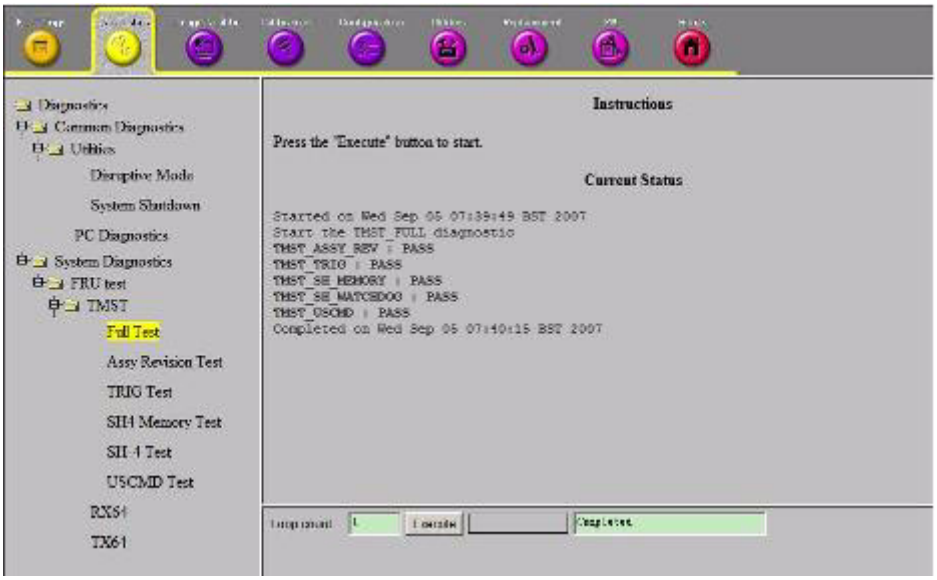


Figure 7-31 Remote Diagnostic successful

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

6.) Press power switch, select Full Maintenance Reboot to reboot system, see Figure 7-32 on page 7-27 .

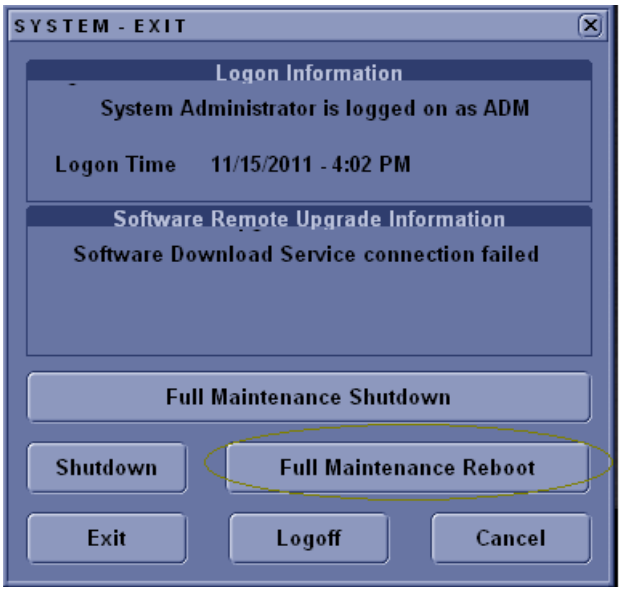


Figure 7-32 Full Maintenance Reboot window

7.) In remote server side, select the device type in DEVICE TYPE.

Figure 7-33 device type window

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

8.) Select Update Software in the category of SERVICE.

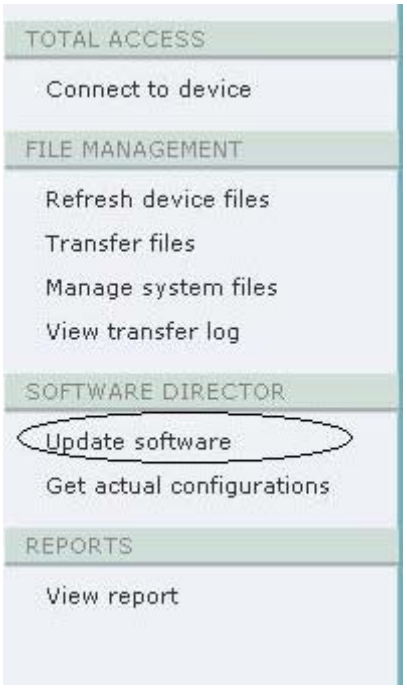


Figure 7-34 Update software

9.) The page of software package shows up, select the correct software package in the list. Then select SCHEDULE to set a proper time to upgrade the software.

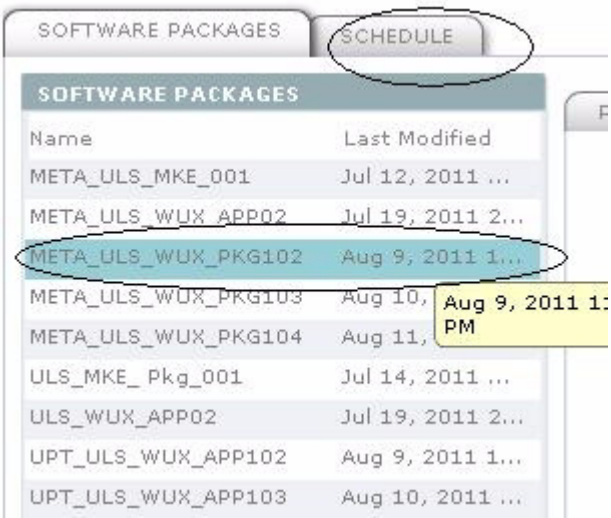


Figure 7-35 software package

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

10.) Click "+" icon on the schedule page to set up a schedule. Fill in the name and time, then click Add.

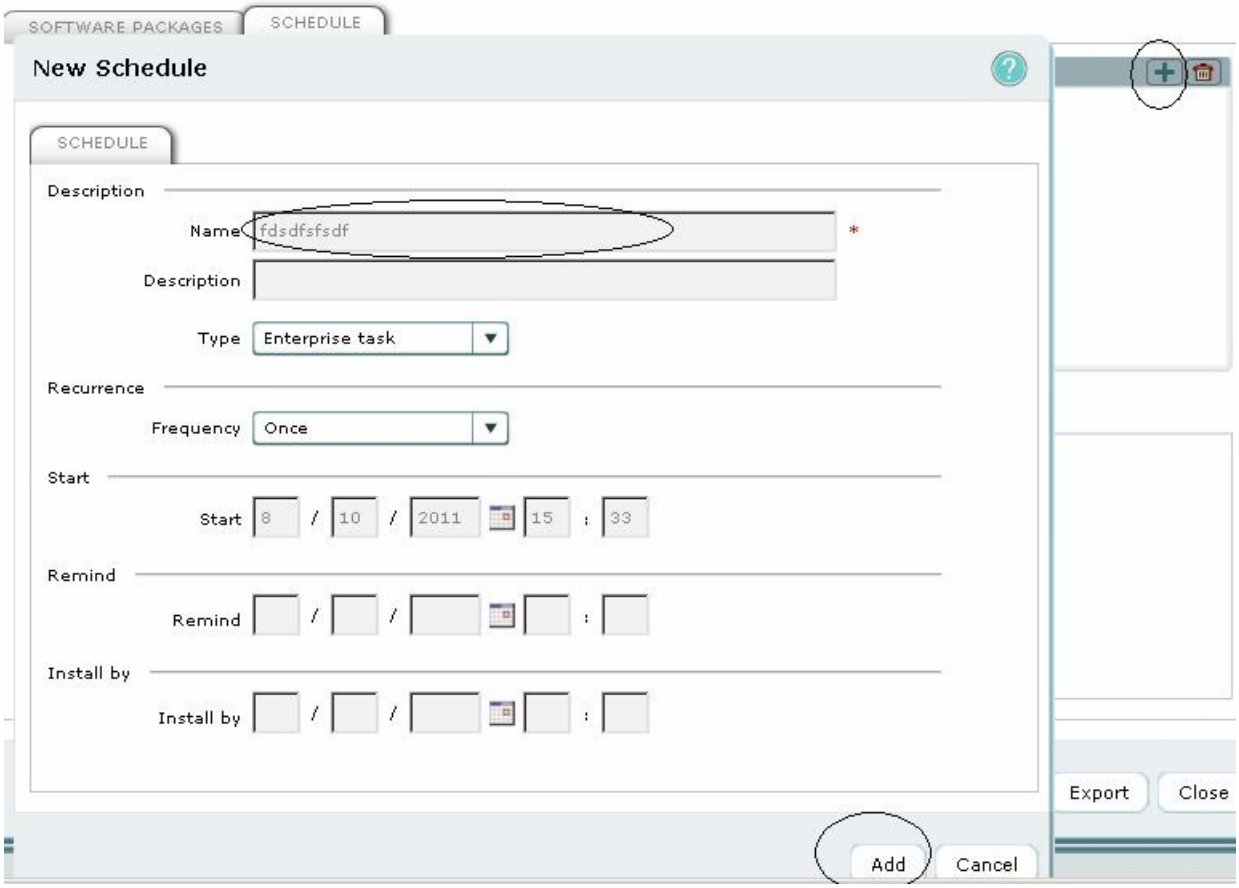


Figure 7-36 New schedule page

11.) Then the active schedule is shown on the SCHEDULE page.

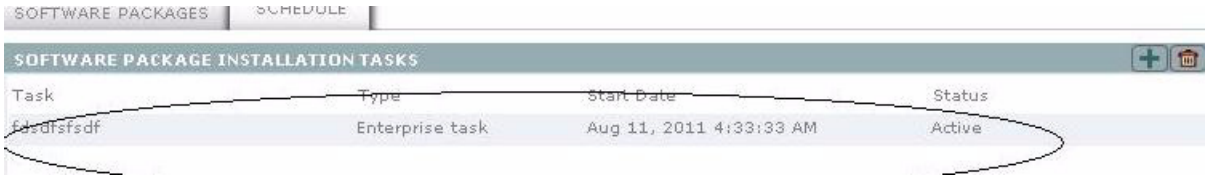


Figure 7-37 Active Schedule

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

12.) In device side, if the device is connected to network, a mail icon will show in the status bar.

Figure 7-38 Status bar

13.) Press Power buuton. The SYSTEM-EXIT window shows up. Click Decline, the system will not download the software, and the Insite icon in the status bar will not shown. Click Download, the system will begin to download the software.

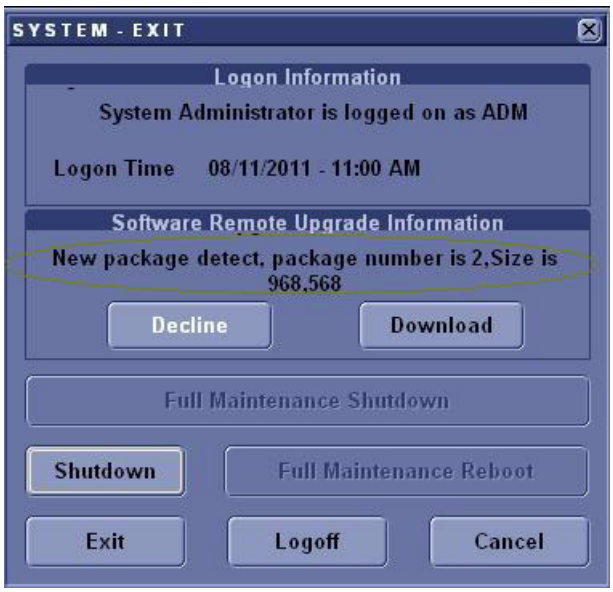


Figure 7-39 System-Exit window

NOTE: If the administrator is in remote side, press Alt+F1 to display the frontpanel simulator. Select the On/Off button, and the system-exit window shows up.

Figure 7-40 Frontpanel Simulator window

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

NOTE: Make sure the system administrator is logged on as ADM, or the system will indicate such message.

Figure 7-41 System-exit error

14.) The system begins to download the software, and wait until the process complete.

If you click Pause, the download process will be paused. Click Download to re-start the process.

If you click Cancel, the download process will stop.

Figure 7-42 Software download process

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

15.) When the download is complete, it will show the window below.

Figure 7-43 Download Complete window

16.) Restart the system, and the system CD will be loaded as shown in Figure 7-44 on page 7-32 .

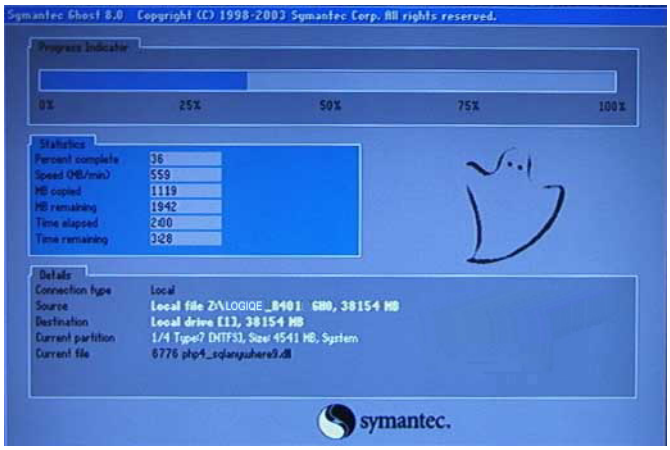

Symantec Ghost 8.0 Copyright (C) 1998-2003 Symantec Corp. All rights reserved.
Progress Indicator
0% 25% 50% 75% 100%
Statistics
Percent complete 36
Speed (MB/min) 559
MB copied 1119
MB remaining 1942
Time elapsed 240
Time remaining 328
Details
Connection type Local
Source Local file Z:\LOGIQE_8401 GHO, 38154 MB
Destination Local drive [1], 38154 MB
Current partition 1/4 Type7 0x7 [NTFS], Size 4541 MB, System
Current file 6776 php4_sqlanywhere9.dll
symantec.

Figure 7-44 System CD loading

7-7-3 Insite II Configuration (For LOGIQ e R6.x.x and LOGIQ e R7.x.x) (cont'd)

17.) After the system is on, login as ADM. Press Power button, and the system-exit window displays. Select Verify.

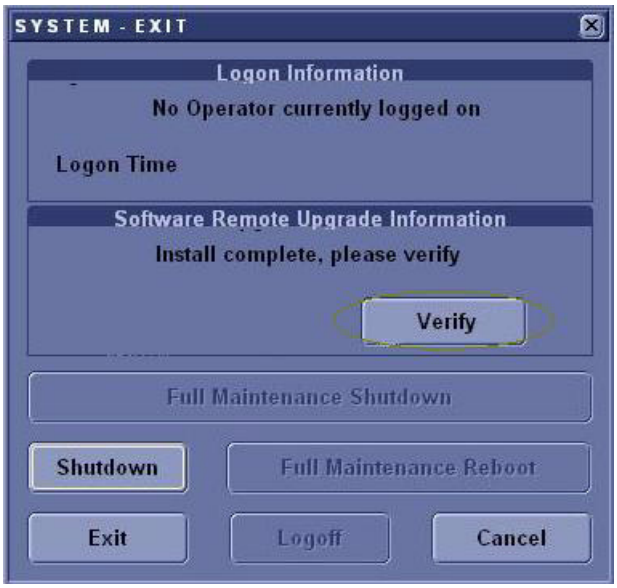


Figure 7-45 System-exit verify window

18.) It will show the verify items. Select Passed, and sign the signature, the upgrade completes. If any of the 10 items fails, the system will remind the user to restart the system to rollback to the previous version.

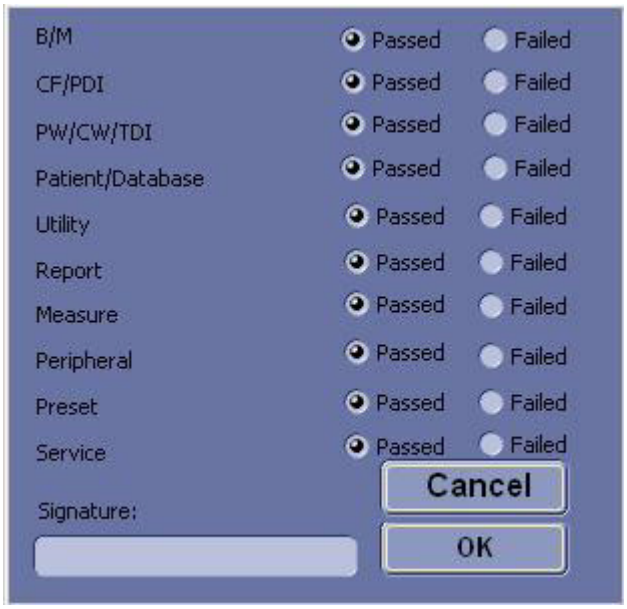


Figure 7-46 Verify item

Chapter 8
Replacement Procedures

Section 8-1
Overview

8-1-1 Purpose of Chapter 8

This chapter describes replacement procedures for the following modules and subsystems.

Table 8-1 Contents in Chapter 8

Section	Description	Page Number
8-1	Overview	8-1
8-2	Disassembly/Re-assembly of LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e	8-1
8-2-1	Warning and Caution	8-1
8-2-2	Handle Assy (FRU No. 313)	8-2
8-3	Loading Base Image Software	8-4
8-4	Checks after FRU replacement (Debrief Guidelines)	8-9

Section 8-2
Disassembly/Re-assembly of LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

8-2-1 Warning and Caution

WARNING ***ONLY QUALIFIED SERVICE PERSONNEL SHOULD REMOVE ANY COVERS OR PANELS. ELECTRICAL HAZARDS EXISTS AT SEVERAL POINTS INSIDE. BECOME THOROUGHLY FAMILIAR WITH ALL HAZARDOUS VOLTAGES AND HIGH CURRENT LEVELS TO AVOID ACCIDENTAL CONTACT***

CAUTION **Do not wear the ESD wrist strap when you work on live circuits and more than 30V peak is present.**

8-2-2 Handle Assy (FRU No. 313)

Purpose: This is a description on how to remove and replace the Handle Assy (FRU No.313).

8-2-2-1 Tools

- Plier

8-2-2-2 Needed Manpower

- 1 person, 2 minutes + travel

8-2-2-3 Preparations

- Shut Down the System.

8-2-2-4 Removal Procedure

Refer to Figure 8-1 on page 8-3 .

1.) Unscrew the two handle caps on both sides of the system, the rotation direction is counterclockwise.
2.) Pull out the Handle.

8-2-2-5 Mounting procedure

1.) Install the new parts in the reverse order of removal.

8-2-2 Handle Assy (FRU No. 313) (cont'd)

1)

2)

Figure 8-1 Handle Assy Disassembly

Section 8-3
Loading Base Image Software

NOTE: While it is believed to be unnecessary, It would not hurt to disconnect the system from the network and remove all transducers.

NOTE: Please ensure AC adapter is connected during system upgrade!

1.) Insert the disk labeled “System & Application Software” into the DVD ROM drive.
2.) Properly turn off the scanner by momentarily pressing the *Power On/Off* Switch. Select “Full Maintenance Reboot” from the System Exit menu.
3.) If the system will not shutdown normally, hold down the *Power On/Off* Switch until the light turns from green to amber.

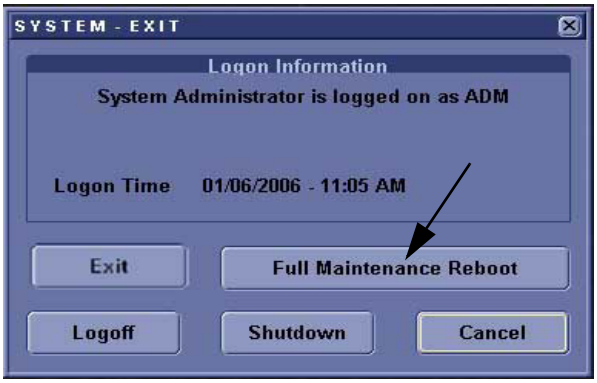


Figure 8-2 Shutdown Dialog Box

4.) Turn on the scanner. System will detect the DVD-RW automatically.
5.) Press any key to continue when below message display as shown in Figure 8-3 on page 8-4 .

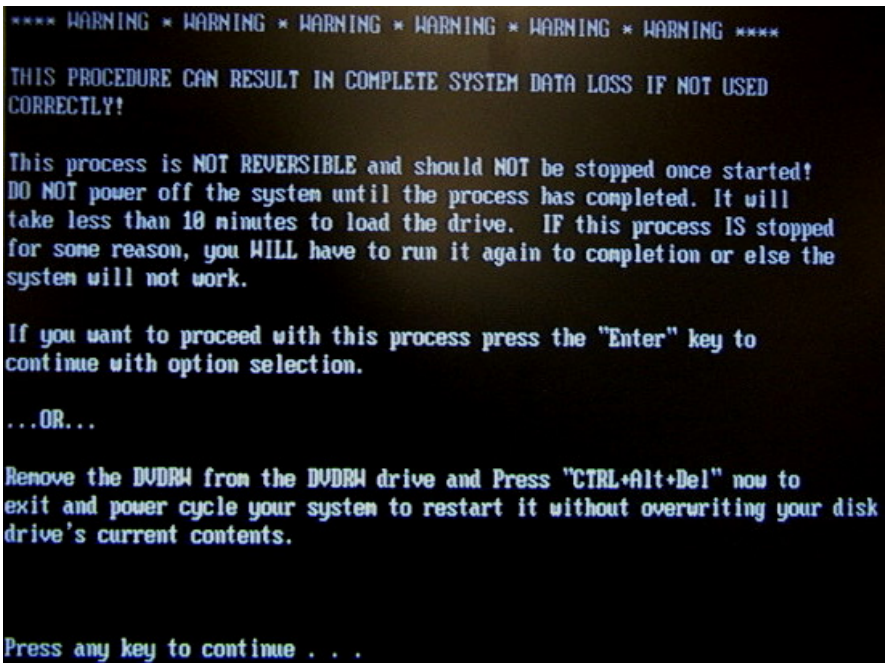

**** WARNING * WARNING * WARNING * WARNING * WARNING * WARNING ****
THIS PROCEDURE CAN RESULT IN COMPLETE SYSTEM DATA LOSS IF NOT USED CORRECTLY!
This process is NOT REVERSIBLE and should NOT be stopped once started! DO NOT power off the system until the process has completed. It will take less than 10 minutes to load the drive. IF this process IS stopped for some reason, you WILL have to run it again to completion or else the system will not work.
If you want to proceed with this process press the "Enter" key to continue with option selection.
...OR...
Remove the DVDRW from the DVDRW drive and Press "CTRL+Alt+Del" now to exit and power cycle your system to restart it without overwriting your disk drive's current contents.
Press any key to continue . . .

Figure 8-3 Update message

Section 8-3 Loading Base Image Software (cont'd)

6.) Select one of the options for loading the system. Select choice [a] to load the complete disk. Refer to Figure 8-4 on page 8-5 .

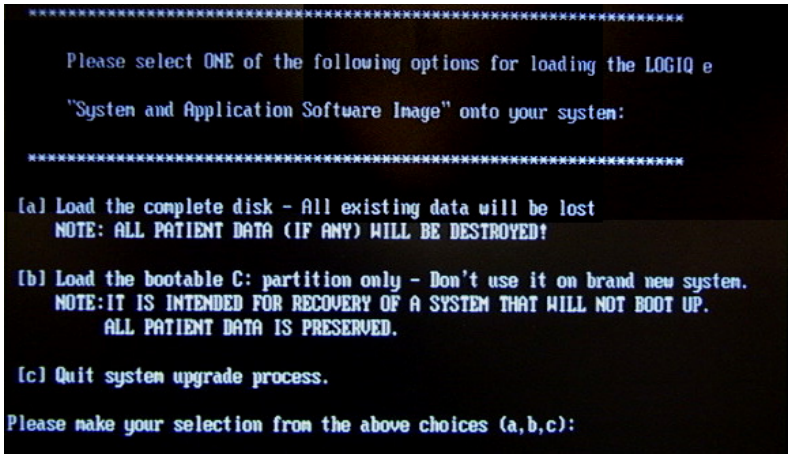

Please select ONE of the following options for loading the LOGIQ e
"Systen and Application Software Image" onto your system:
[a] Load the complete disk - All existing data will be lost
NOTE: ALL PATIENT DATA (IF ANY) WILL BE DESTROYED!
[b] Load the bootable C: partition only - Don't use it on brand new system.
NOTE:IT IS INTENDED FOR RECOVERY OF A SYSTEM THAT WILL NOT BOOT UP.
ALL PATIENT DATA IS PRESERVED.
[c] Quit system upgrade process.
Please make your selection from the above choices (a,b,c):

Figure 8-4 Selection for loading the system

⚠ **WARNING** ***While the software install procedure is designed to preserve data, you should select choice [b] to format disk C only.***

7.) Press "Yes" or "No" to continue.

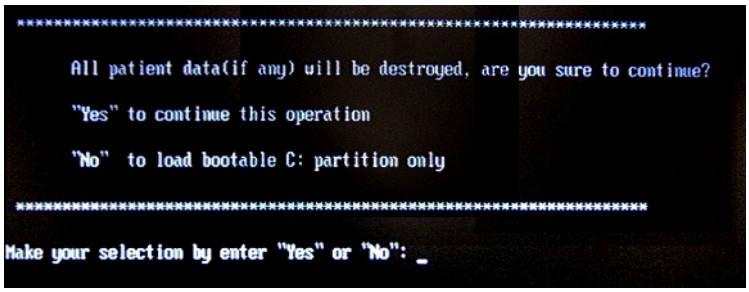

All patient data(if any) will be destroyed, are you sure to continue?
"Yes" to continue this operation
"No" to load bootable C: partition only
Make your selection by enter "Yes" or "No": _

Figure 8-5 Confirmation on loading the system

Section 8-3 Loading Base Image Software (cont'd)

8.) System CD will be loaded as shown in Figure 8-6 on page 8-6 .

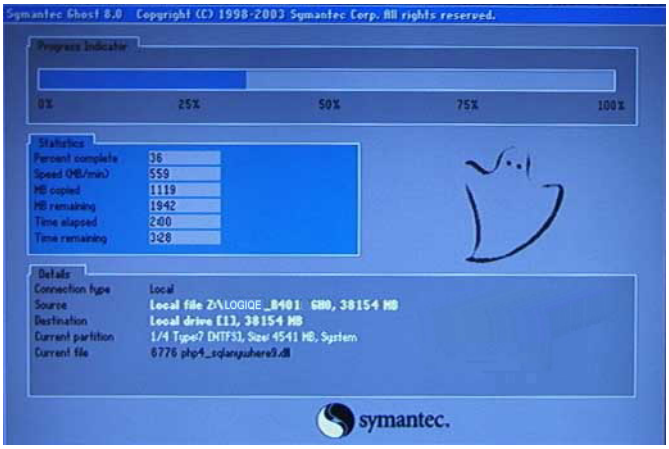


Figure 8-6 System CD loading

If the screen displays as show in Figure 8-7 on page 8-6 after input "Yes", wait about 1 minute until Figure 8-6 on page 8-6 displays.

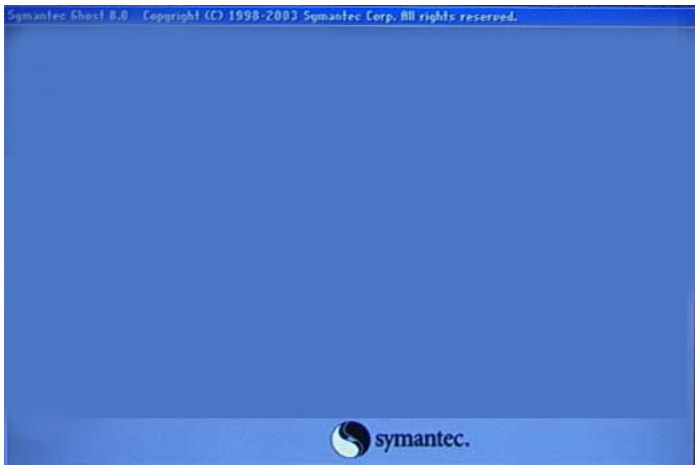


Figure 8-7 System CD loading blank message

NOTE: System CD will be loaded twice, and it will need about 20 minutes.

Section 8-3 Loading Base Image Software (cont'd)

9.) After finish updating system, refer to Figure 8-8 on page 8-7 .

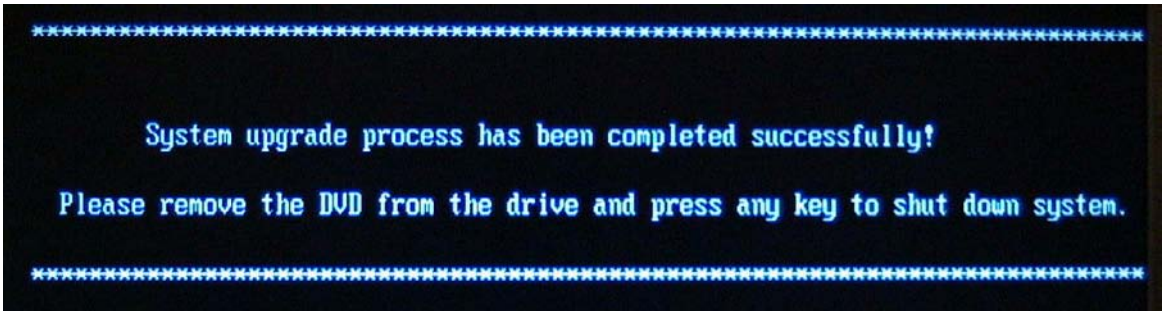

System upgrade process has been completed successfully!
Please remove the DVD from the drive and press any key to shut down system.

Figure 8-8 System upgrade complete

10.) Press any key to reboot system. When system first time boot up after upgrading complete, you will see the following message.

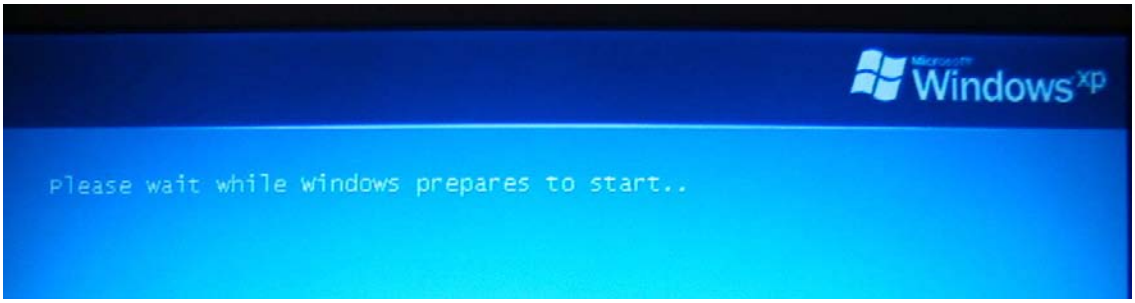


Figure 8-9 Windows start

11.) Make a region selection when below message display as show in Figure 8-10 on page 8-7 .

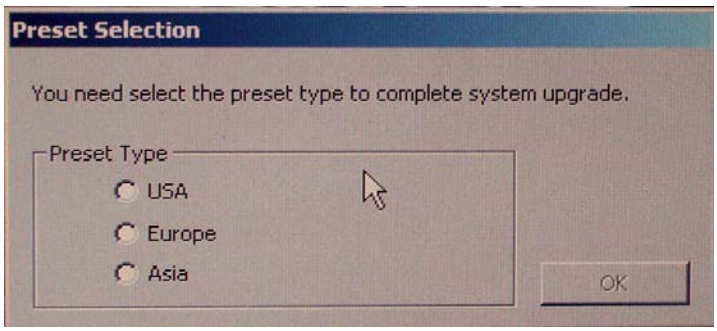


Figure 8-10 Region selection message

NOTE: Step 11.) is only for LOGIQ e R4.x.x, LOGIQ i R4.x.x and Vivid e R4.x.x.

Section 8-3 Loading Base Image Software (cont'd)

NOTE: For LOGIQ e R5.x.x, R6.x.x, please select a package to run the application.

For Emergency&Critical

For Nerve&Needle

For General Imaging

Figure 8-11 Package selection message

NOTE: For LOGIQ e R5.x.x, you need to select a package to run the application.

Section 8-4Checks after FRU replacement (Debrief Guidelines)

Perform required Functional tests based upon the FRU being replaced.

Table 8-2 Functional Tests Matrix of LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

Section	FRU No.	Description	Functional Tests
		Basic Functional Checks	4-3-1, 4-3-2, 4-3-7, 4-3-8, 4-3-9, 4-3-10
8-2-2	313	Handle Assy	Handle function check: 1. The system can be carried with the handle; 2. The handle can rotate from +90 to -110 degree
Section 8-3		Loading Base Image Software	4-3-1, 4-3-2, 4-3-7, 4-3-8, 4-3-9, 4-3-10, Section 4-4

Table 8-3 Functional Test key of LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e

Key	Functional Test/Diagnostics/Leakage Current
4-3-1	Power On/Boot Up
4-3-2	Power Off/ Shutdown
4-3-7	B Mode Checks
4-3-8	M Mode Controls
4-3-9	Color Flow Mode Checks
4-3-10	Doppler Mode Checks
Section 4-4	Software Configuration Checks

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Chapter 9
Renewal Parts

Section 9-1
Overview

9-1-1 Purpose of Chapter 9

This chapter gives an overview of Spare Parts available for the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e .

Table 9-1 Contents in Chapter 9

Section	Description	Page Number
9-1	Overview	9-1
9-2	List of Abbreviations	9-1
9-3	Renewal Parts Lists	9-2
9-4	Operator Console Assy	9-3
9-5	LCD Assy	9-4
9-6	Keyboard Assy	9-6
9-7	Bottom Assy	9-7
9-8	Cables	9-15
9-9	Isolation Cart Components	9-16
9-10	Isolation Cart Enhanced Version Components	9-18
9-11	Accessories and Kits	9-21
9-12	Manuals	9-26
9-13	Probe	9-31

Section 9-2
List of Abbreviations

- Assy - Assembly
- Ctrl - Control
- FRU 1 - Replacement part available in part hub
- FRU 2 - Replacement part available from the manufacturer (lead time involved)
- KBD - Keyboard
- LCD - Liquid Crystal Display
- BnV - Brightness and Volume
- RX64- Dragon Front Processor Board
- TMST - Master Board
- TX64 - Dragon Transmit Board

Section 9-3Renewal Parts Lists

9-3-1 Equipment Models Covered in this Chapter

Table 9-2 ACDC Power Pack & ACDC Power Cable list

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	Vivid e	LOGIQ i	LOGIQ e Vet
001	5196783	ACDC adapter with clamp filter	1	1	x	x	x	x
001A	5196783-2	ACDC adapter with clamp filter	1	1	x	x	x	x
002	2409198	ACDC Power Pack unit 100W AC Adapter	1	1	x	x	x	x
002A	2409198-2	ACDC Power Pack unit 110W AC Adapter	1	1	x	x	x	x
003	5120411	ACDC Power Cable for USA	1	1	x	x	x	x
004	5120412	ACDC Power Cable for Europe	1	1	x	x	x	x
005	5120439	ACDC Power Cable for China	1	1	x	x	x	x
006	5120440	ACDC Power Cable for Japan	1	1	x	x	x	x
007	5125218	ACDC Power Cable for Australia/New Zealand	1	1	x	x	x	x
008	5125219	ACDC Power Cable for United Kingdom and Ireland	1	1	x	x	x	x
009	5125221	ACDC Power Cable for India/South Africa	1	1	x	x	x	x
010	5125223	ACDC Power Cable for Argentina	1	1	x	x	x	x
011	5125227	ACDC Power Cable for Israel	1	1	x	x	x	x
012	5125228	ACDC Power Cable for Switzerland	1	1	x	x	x	x
013	5400793	ACDC Power Cable for Brazil	1	1	x	x	x	x

Section 9-4 Operator Console Assy

Figure 9-1 OPERATOR CONSOLE ASSY

Section 9-5 LCD Assy

Figure 9-2 LCD Assy

Section 9-5 LCD Assy (cont'd)

Table 9-3 LCD Assy

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	LOGIQ i	Vivid e
100	5244921	LCD Assy for LOGIQ e R5.0.x /LOGIQ e R5.2.x/LOGIQ e R6.x.x/ LOGIQ e Vet / Vivid e R4.x.x	1	1	x	x		x
	5147473-2	LCD Assy for LOGIQ e R4.x.x/Vivid e R4.x.x	1	1	x			x
	5244918	LCD Assy for Vivid e R5.x.x / Vivid e R6.x.x	1	1				x
	5190011	LCD Assy for LOGIQ i R4.x.x	1	1			x	
	5244920	LCD Assy for LOGIQ i R5.x.x	1	1			x	
	5419295	LCD Assy for LOGIQ e R7.x.x	1	1	x			
101	5418452	LCD Front Cover for LOGIQ e R7.x.x	1	1	x			
	5133509-3	LCD Front Cover for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x/ LOGIQ e R6.x.x /LOGIQ e Vet / Vivid e R4.x.x	1	1	x	x		x
	5199553	LCD Front Cover for Vivid e R5.x.x / Vivid e R6.x.x	1	1				x
	5190010-2	Front Cover for LOGIQ i R4.x.x /LOGIQ i R5.x.x	1	1			x	
102	5419292	LCD Back Cover for LOGIQ e R7.x.x	1	1	x			
	5149676	LCD Back Cover for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x/ LOGIQ e R6.x.x /LOGIQ e Vet / Vivid e R4.x.x	1	1	x	x		x
	5212061	LCD Back Cover for Vivid e R5.x.x / Vivid e R6.x.x	1	1				x
	5190008	Back Cover for LOGIQ i R4.x.x	1	1			x	
	5190009	Back Cover for LOGIQ i R5.x.x	1	1			x	
103	5147731-2	Inverter Assy LOGIQ e R5.0.x / LOGIQ e R5.2.x/LOGIQ e R6.x.x /LOGIQ e Vet / Vivid e R5.x.x / Vivid e R6.x.x	1	1	x	x		x
	5147731	Inverter Assy for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	1	x	x	x	x
104	5251801	LCD panel for LOGIQ e R5.0.x / LOGIQ e R5.2.x/LOGIQ e R6.x.x / LOGIQ e Vet/ Vivid e R4.x.x / Vivid e R5.x.x / Vivid e R6.x.x / LOGIQ i R5.x.x	1	2	x	x	x	x
	5146747	LCD panel for LOGIQ e R4.x.x /Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
105	5125944-3	LCD cable	1	2	x	x	x	x
106	5184890	Cable Kit (LCD cable, KBD cables) for LOGIQ e R4.x.x / Vivid e R4.x.x	1	2	x			x
106A	5184890-2	Cable Kit (LCD cable, KBD cables) for LOGIQ e R4.x.x / LOGIQ i R5.x.x	1	2	x		x	
107	5244561	Hg label for Vivid e R4.x.x	1	2				x
108	5366398	LCD Cable Kit (LCD Cable and LCD Cable with JAE connector	1	2	x	x	x	x

Section 9-6Keyboard Assy

Figure 9-3 Keyboard Assy

Section 9-6 Keyboard Assy (cont'd)

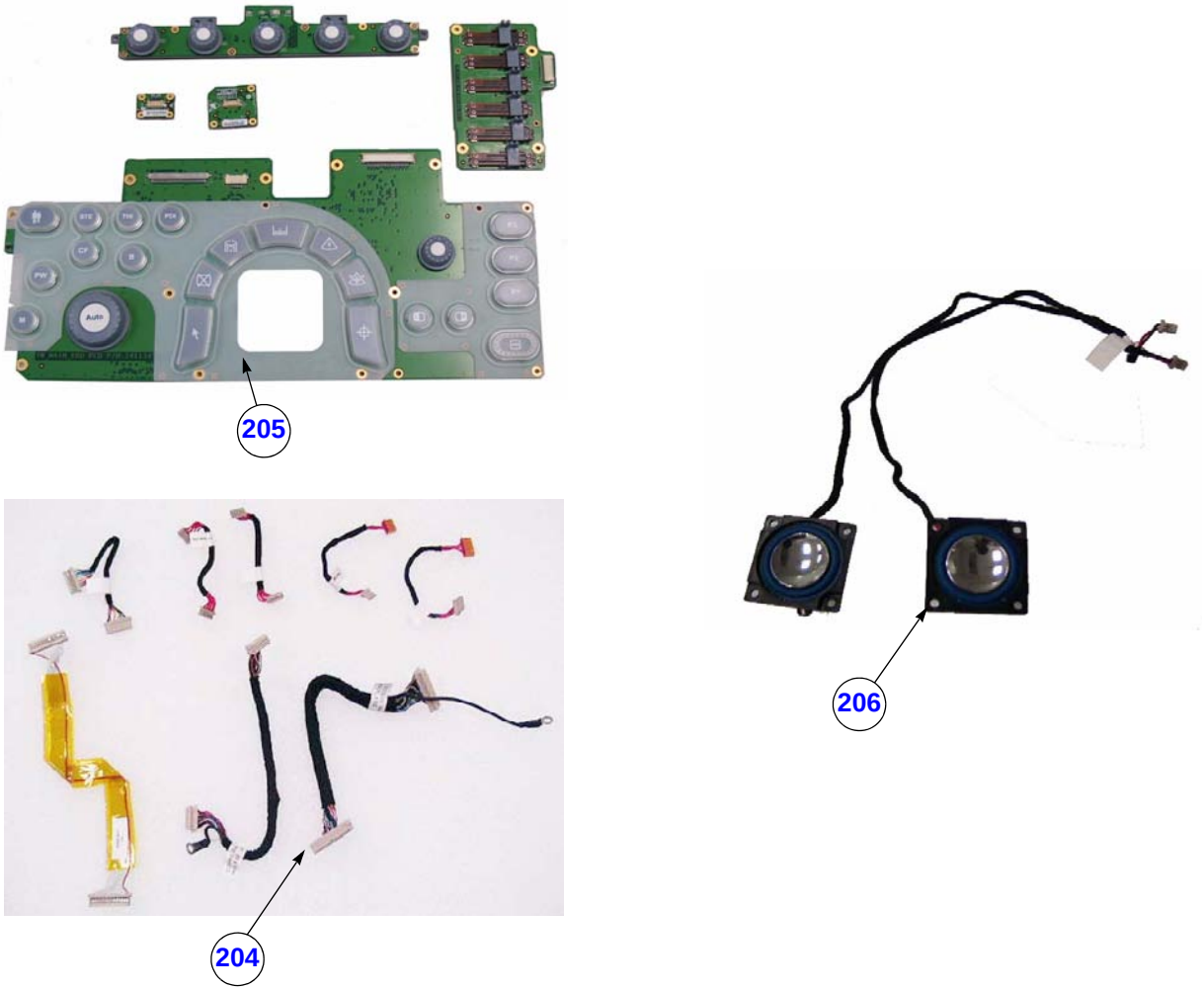


Figure 9-4 Keyboard Assy (cont'd)

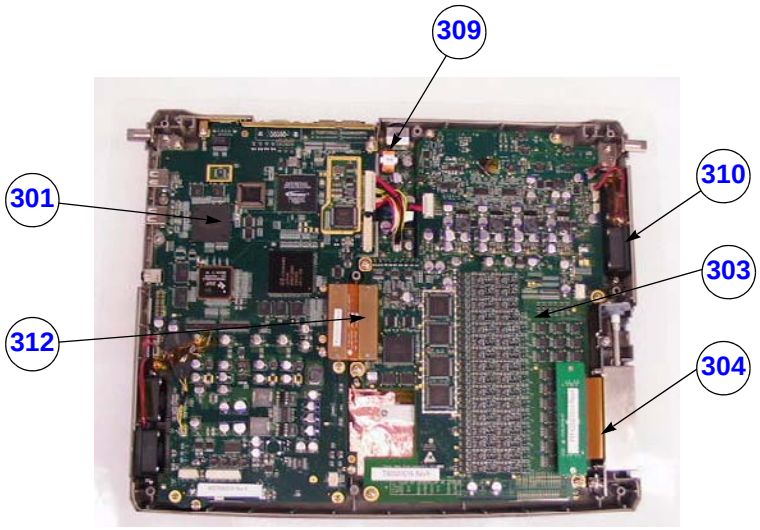
Table 9-4 Keyboard Assy

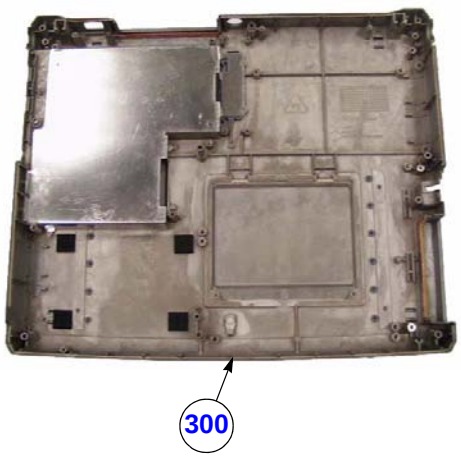
Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	LOGIQ i	Vivid e
200	5419297	Keyboard Assy for LOGIQ e R7.x.x	1	1	x			
	5198176	Keyboard Assy for LOGIQ e R5.0.x / LOGIQ e R5.2.x /LOGIQ e R6.x.x / LOGIQ e Vet	1	1	x	x		
	5148753	Keyboard Assy for LOGIQ e R4.x.x	1	1	x			
	5172817	Keyboard Assy for Vivid e R4.x.x	1	1				x
	5199342	Keyboard Assy Vivid e R5.x. x/ Vivid e R6.x.x	1	1				x
	5184814	Keyboard Assy for LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	1			x	

Table 9-4 Keyboard Assy

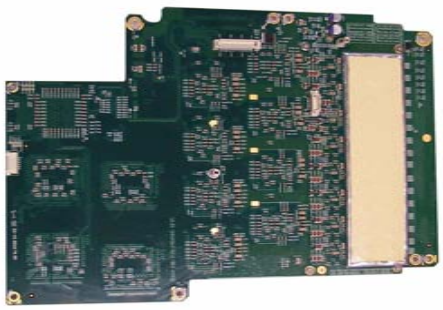
Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	LOGIQ i	Vivid e
201	5160471	Trackball Assy	1	1	x	x	x	x
202	5420742	A/N Key Assy for LOGIQ e R7.x.x	1	2	x			
	5123732	A/N Key Assy for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x/ LOGIQ e Vet / LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	2	x	x	x	
	5175936	A/N Key Assy for Vivid e R4.x.x	1	2				x
	5252489	A/N Key Assy for Vivid e R5.x.x / Vivid e R6.x.x	1	2				x
203	5419296	Keyboard cover Assy for LOGIQ e R7.x.x	1	2	x			
	5199756	Keyboard cover Assy for LOGIQ e R5.0.x / LOGIQ e R5.2.x /LOGIQ e R6.x.x/ LOGIQ e Vet	1	2	x	x		
	5148760	Keyboard cover Assy for LOGIQ e R4.x.x	1	2	x			
	5173857	Keyboard cover Assy for Vivid e R4.x.x	1	2				x
	5199973	Keyboard cover Assy for Vivid e R5.x.x / Vivid e R6.x.x	1	2				x
	5190002	Keyboard cover Assy for LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	2			x	
204	5154621-2	KBD cable kits for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x/LOGIQ e R6.x.x / LOGIQ e Vet /Vivid e R5.x.x / Vivid e R6.x.x /LOGIQ i R5.x.x	1	1	x	x	x	x
	5154621	KBD cable kits for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	1	x		x	x
205	5155123	Keyboard PWA kits for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x/LOGIQ e R6.x.x / LOGIQ e Vet / LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	1	x	x	x	
	5173672	Keyboard PWA kits for Vivid e R4.x.x	1	2				x
	5224534	Keyboard PWA kits for Vivid e R5.x.x / Vivid e R6.x.x	1	1				x
206	5155004	Speaker Kits	2	1	x	x	x	x
207	5125106-4	Main KBD to MST Cable for LOGIQ e R7.x.x	1	2	x			
	5125106-3	Main KBD to MST Cable	1	2	x	x	x	x

Section 9-7Bottom Assy





301



303

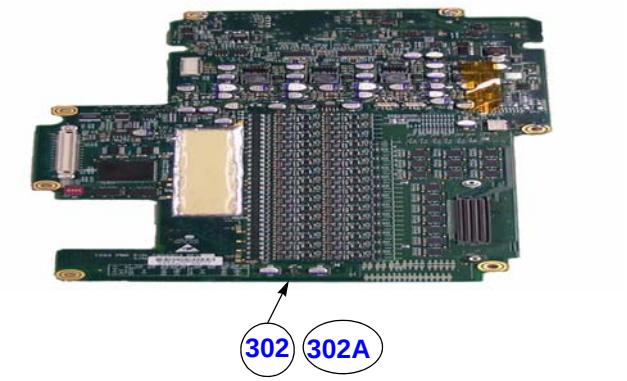


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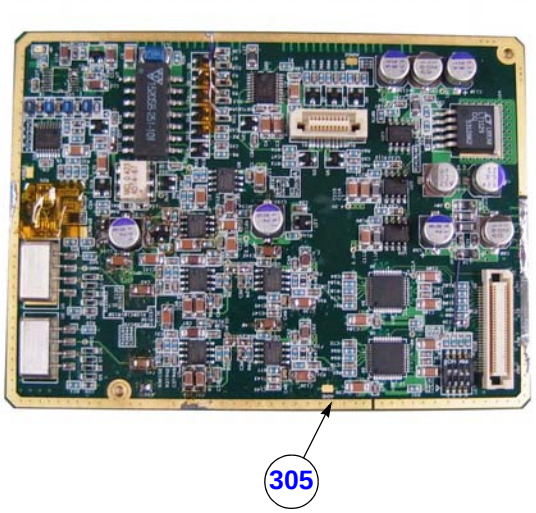
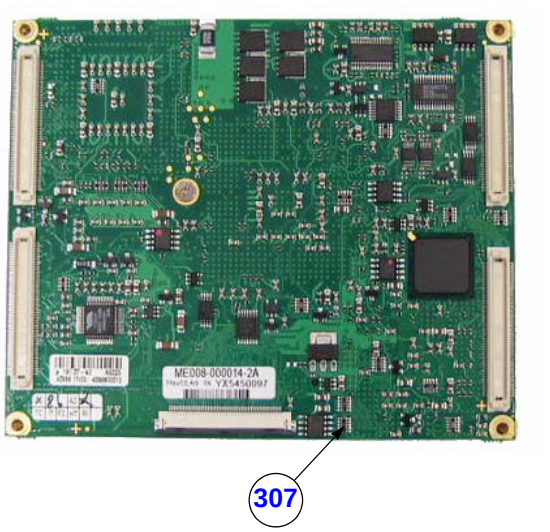
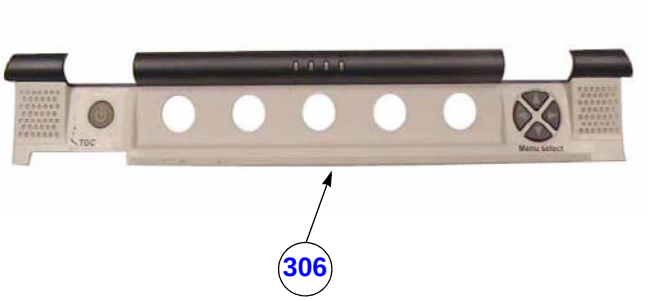
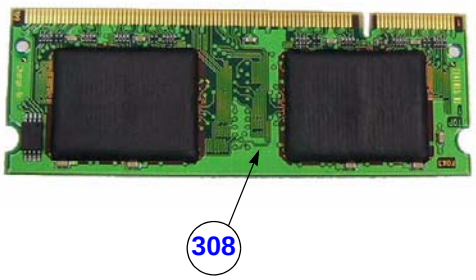
Figure 9-5 Bottom Assy

Section 9-7 Bottom Assy (cont'd)

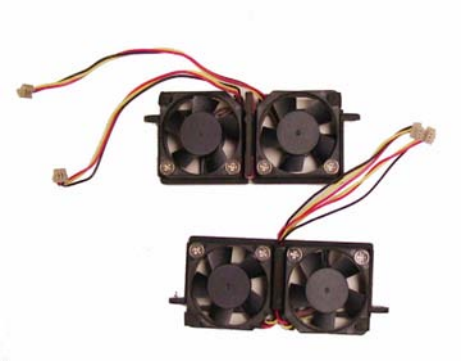








309



310

Figure 9-6 Bottom Assy (cont'd)

Section 9-7 Bottom Assy (cont'd)

312

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316

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Figure 9-7 Bottom Assy (cont'd)

Section 9-7 Bottom Assy (cont'd)

Table 9-5 Bottom Assy

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	LOGIQ i	Vivid e
300	5422185	Bottom Cover Assy for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x / LOGIQ e R7.x.x / LOGIQ e Vet	1	2	x	x		
	5148765	Bottom Cover Assy for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x/ LOGIQ e Vet	1	2	x	x		
	5148764	Bottom Cover Assy for Vivid e R4.x.x	1	2				x
	5213129	Bottom Cover Assy for Vivid e R5.x.x / Vivid e R6.x.x	1	2				x
	5182370	Bottom Cover Assy for LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	2			x	
301	2406640	TMST Board	1	1	x	x	x	x
	2406640-2	TMST Board	1	1	x	x	x	x
	2406640-3	TMST Board	1	1	x	x	x	x
	2406640-3R	TMST Board	1	1	x	x	x	x
	2406640-4	TMST Board	1	1	x	x	x	x
302	2404903	TX64 Board for LOGIQ e R4.x.x / LOGIQ e R5.x.x / Vivid e R4.x.x / Vivid e R5.x.x / LOGIQ i R4.x.x / LOGIQ i R5.x.x / LOGIQ e Vet	1	1	x	x	x	x
302A	2404903-2	TX64 Board for LOGIQ e R4.x.x / LOGIQ e R5.x.x / Vivid e R4.x.x / Vivid e R5.x.x / LOGIQ i R4.x.x / LOGIQ i R5.x.x / LOGIQ e Vet	1	1	x	x	x	x
302B	2404903-3	TX64 Board for LOGIQ e R4.x.x / LOGIQ e R5.x.x / Vivid e R4.x.x / Vivid e R5.x.x / LOGIQ i R4.x.x / LOGIQ i R5.x.x / LOGIQ e Vet	1	1	x	x	x	x
302C	2404903-6	TX64 Board for LOGIQ e R6.x.x / Vivid e R6.x.x	1	1	x			x
302D	2404903-7	TX64 Board for LOGIQ e R6.x.x / LOGIQ e R7.x.x / Vivid e R6.x.x	1	1	x			x
303	2404906	RX64 Board	1	1	x	x	x	x
303A	2404906-3	RX64 Board	1	1	x	x	x	x
304	5148771	Probe Connector Assy	1	1	x	x	x	x
304A	5389034	Probe Connector Assy for LOGIQ e R6.x.x	1	1	x			
304B	5422449	Probe Connector Assy for LOGIQ e R6.x.x / LOGIQ e R7.x.x	1	1	x			
305	5124847-2	CWD Board	1	1	x	x	x	x
	5124847-3	CWD Board	1	1	x	x	x	x

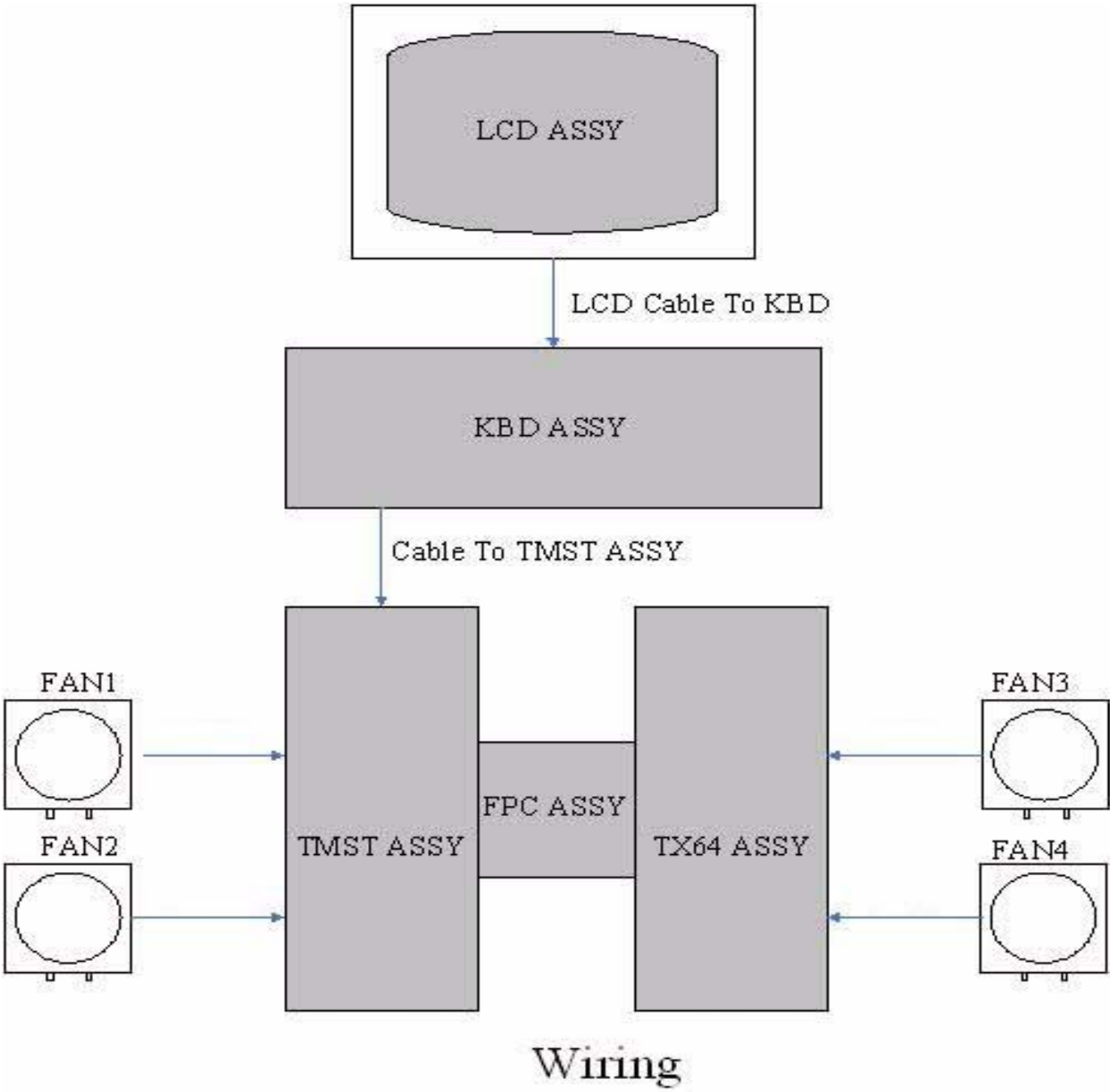
Table 9-5 Bottom Assy

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	LOGIQ i	Vivid e
306	5419298	Menu Panel Assy for LOGIQ e R7.x.x	1	1	x			
	5212013	Menu Panel Assy for LOGIQ e R5.0.x / LOGIQ e R5.2.x/LOGIQ e R6.x.x/ LOGIQ e Vet	1	1	x	x		
	5148773	Menu Panel Assy for LOGIQ e R4.x.x / Vivid e R4.x.x	1	1	x			x
	5212340	Menu Panel Assy for Vivid e R5.x.x / Vivid e R6.x.x	1	1				x
	5184871	Menu Panel Assy for LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	1			x	
307	5155175	PM1.4G ETX CPU Module for LOGIQ e R4.x.x / LOGIQ e R5.x.x / Vivid e R4.x.x / Vivid e R5.x.x / LOGIQ i R4.x.x / LOGIQ i R5.x.x / LOGIQ e Vet	1	1	x	x	x	x
307A	5392210	U7500 CPU kits for LOGIQ e R6.x.x / Vivid e R6.x.x	1	1	x			x
	5392210-2	U7500 CPU kits only for LOGIQ e R6.x.x / Vivid e R6.x.x	1	1	x			x
308	5159620	512MB DDR Memory	1	1	x	x	x	x
309	5162038-3	Charger Board and Cable Kits for LOGIQ e R5.0.x / LOGIQ e R5.2.x /LOGIQ e R6.x.x/ LOGIQ e Vet / Vivid e R5.x.x / Vivid e R6.x.x / LOGIQ i R5.x.x	1	2	x	x	x	x
	5162038-2	Charger Board and Cable Kits for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
310	5148768	Left FAN Assy (2 Fans)	1	1	x	x	x	x
	5173403-3	Right FAN Assy (2 Fans)	1	1	x	x	x	x
311	5155166	LCD and Handle Hinge kits	1	1	x	x	x	x
312	2406733	TMST2TX64 Assy	1	2	x	x	x	x
313	5154937	Handle Assy for LOGIQ e R4.x.x / LOGIQ e R5.0.x /LOGIQ e R5.2.X/LOGIQ e R6.x.x / LOGIQ e Vet / Vivid e R4.x.x / LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	2	x	x	x	x
	5234933	Handle Assy for Vivid R5.x.x / Vivid e R6.x.x	1	2			x	
314	5154486	Screw Kits	1	2	x	x	x	x
315	5154731	Rubber Kits	1	2	x	x	x	x
316	5255230	80G HDD without Program Assy	1	1	x	x	x	x
	5255231-2	160G HDD without Program Assy	1	1	x	x	x	x
	5148772	HDD Assy for LOGIQ e R4.x.x	1	1	x			
	5174862-5	HDD Assy for Vivid e R4.x.x	1	1				x
	5190005	HDD Assy for LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	1			x	
317	5145407	CMOS Battery	1	1	x	x	x	x

Table 9-5 Bottom Assy

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	LOGIQ i	Vivid e
318	5422180	Battery Clip for LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x / LOGIQ e R7.x.x /LOGIQ e Vet / Vivid e R5.x.x / Vivid e R6.x.x	1	2	x	x		x
	5135311	Battery Clip for LOGIQ e R5.0.x / LOGIQ e R5.2.x //LOGIQ e R6.x.x LOGIQ e Vet / Vivid e R5.x.x / Vivid e R6.x.x	1	2	x	x		x
319	5234927	HDD Shelf kits for LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	1			x	

Section 9-8
Cables



Wiring

Section 9-9Isolation Cart Components

Figure 9-8 Isolation Cart Components

Table 9-6 Isolation Cart Components

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
501	5183729	Wheels	1	2	x	x	x	x
502	5180439-2	Isolation transformer 110V	1	2	x	x	x	x
	5180376	Isolation transformer 200V~240V	1	2	x	x	x	x
	5180376-2	Isolation transformer 220V	1	2	x	x	x	x
503	5183627	Handle kits	1	2	x	x	x	x
504	5183958	Probe holder kits	1	2	x	x	x	x
505	5183719	Hardware kits	1	2	x	x	x	x

Table 9-6 Isolation Cart Components

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
506	5182671	USA class cable kits	1	2	x	x	x	x
	5182937	European class cable kits	1	2	x	x	x	x
	5182252	Chinese class cable kits	1	2	x	x	x	x
	5182323	Japanese class cable kits	1	2	x	x	x	x
	5182095	Australia/New Zealand class cable kits	1	2	x	x	x	x
	5182890	United Kingdom and Ireland class cable kits	1	2	x	x	x	x
	5182310	Denmark class cable kits	1	2	x	x	x	x
	5182038	India/South Africa class cable kits	1	2	x	x	x	x
	5182881	Argentina class cable kits	1	2	x	x	x	x
	5182625	Israel class cable kits	1	2	x	x	x	x
	5182631	Switzerland class cable kits	1	2	x	x	x	x
507	5183906	Security lock	1	2	x	x	x	x
508	5176271-2	Isolation Cart (110V)	1	2	x	x	x	x
	5177329-2	Isolation Cart (220V)	1	2	x	x	x	x
509	5195546	Isolation Cart 250V T 5A Fuse for Tranformer	1	1	x	x	x	x

Section 9-10
Isolation Cart Enhanced Version Components

Figure 9-9 Isolation Cart Components

Table 9-7 Isolation Cart Components

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
510	5384810	Isolation Cart (110V)	1	2	x	x	x	x
	5423269	Isolation Cart (110V)	1	2	x	x	x	x
	5384811	Isolation Cart (220V)	1	2	x	x	x	x
	5423270	Isolation Cart (220V)	1	2	x	x	x	x
511	5394023	Castor kits	1	2	x	x	x	x
512	5391829	Gas Spring lever						
513	5394060	Isolation cart transformer 110V (Dark Steel Blue)	1	2	x	x	x	x
	5394061	Isolation cart transformer 220V (Dark Steel Blue)						
513A	5426649	Isolation cart transformer 110V (Onyx Black)	1	2	x	x	x	x
	5426650	Isolation cart transformer 220V (Onyx Black)						
514	5394028	Cable hook kit (Dark Steel Blue)	1	2	x	x	x	x
514A	5426642	Cable hook kit (Onyx Black)	1	2	x	x	x	x
515	5394065	Isolation Cart Rear Handle	1	2	x	x	x	x
516	5391606	Spring Cable Assy	1	2	x	x	x	x
517	5394036	Locate block and Screw cap (GE Pearl Metallic)	1	2	x	x	x	x
517A	5426645	Locate block and Screw cap (GE N9)	1	2	x	x	x	x
518	5394032	Probe and gel holder kit (Dark Steel Blue)	1	2	x	x	x	x
518A	5426644	Probe and gel holder kit (Onyx Black)	1	2	x	x	x	x
519	5394021	Handle clip kit	1	2	x	x	x	x
521	5215494	Security lock with package	1	2	x	x	x	x
522	5394064	Isolation Cart Front handle (Dark Steel Blue)	1	2	x	x	x	x
522A	5426643	Isolation Cart Front handle (Onyx Black)	1	2	x	x	x	x
523	5394067	Gas Spring Assy (Dark Steel Blue)	1	2	x	x	x	x
523A	5426646	Gas Spring Assy (Onyx Black)	1	2	x	x	x	x

Table 9-7 Isolation Cart Components

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
524	5177154	AC Power Cord Switzerland	1	2	x	x	x	x
	5176753	AC Power Cord Israel	1	2	x	x	x	x
	5177195	AC Power Cord Argentina	1	2	x	x	x	x
	5176773	AC Power Cord India	1	2	x	x	x	x
	5177153	AC Power Cord Denmark	1	2	x	x	x	x
	5176907	AC Power Cord UK	1	2	x	x	x	x
	5177187-2	AC Power Cord Australia	1	2	x	x	x	x
	5177126	AC Power Cord Japan	1	2	x	x	x	x
	5176304	AC Power Cord China	1	2	x	x	x	x
	5177123	AC Power Cord Europe	1	2	x	x	x	x
	5177146	AC Power Cord USA	1	2	x	x	x	x
525	5393025	Isolation Cart Drawer Kits (GE Pearl Metallic)	1	2	x	x	x	x
525A	5426647	Isolation Cart Drawer Kits (GE N9)	1	2	x	x	x	x
526	5393026	Isolation Cart Basket Kits (GE Pearl Metallic)	1	2	x	x	x	x
526A	5426648	Isolation Cart Basket Kits (GE N9)	1	2	x	x	x	x

Section 9-11
Accessories and Kits

Table 9-8 Accessories and Kits

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
601	5422172	Battery Pack for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x / LOGIQ e R7.x.x / LOGIQ e Vet /Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x	x	x	x
	5120410-2	Battery Pack for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x/LOGIQ e Vet /Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x	x	x	x
	5120410	Battery Pack for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x/LOGIQ e Vet /Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x	x	x	x
	5183459	Battery Pack Vivid e R5.x.x / Vivid e R6.x.x / LOGIQ i R5.x.x	1	2			x	x
602	5151233	DVD-RW (USA) LG DVD-RW for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
602A	5151233-2	DVD-RW (USA) LITEON DVD-RW	1	2	x	x	x	x
602B	5151233-3	DVD-RW (USA) LITEON DVD-RW	1	2	x	x	x	x
602C	5151233-4	DVD-RW (USA) LITEON DVD-RW	1	2	x	x	x	x
603	5151255	DVD-RW (CHN) LG DVD-RW LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
603A	5151255-2	DVD-RW (CHN) LITEON DVD-RW	1	2	x	x	x	x
603B	5151255-3	DVD-RW (CHN) LITEON DVD-RW	1	2	x	x	x	x
603C	5151255-4	DVD-RW (CHN) LITEON DVD-RW	1	2	x	x	x	x
604	5151234	DVD-RW (EUR) LG DVD-RW LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
604A	5151234-2	DVD-RW (EUR) LITEON DVD-RW	1	2	x	x	x	x
604B	5151234-3	DVD-RW (EUR) LITEON DVD-RW	1	2	x	x	x	x
604C	5151234-4	DVD-RW (EUR) LITEON DVD-RW	1	2	x	x	x	x
605	5182891-2	DVD-RW (JPN) LITEON DVD-RW	1	2	x	x	x	x
605A	5182891-3	DVD-RW (JPN) LITEON DVD-RW	1	2	x	x	x	x
605B	5182891-4	DVD-RW (JPN) LITEON DVD-RW	1	2	x	x	x	x
606	5151236	USB Footswitch 3 Pedal Footswitch	1	2	x	x	x	x
607	2327703	USB Footswitch FSU 2001 1 Pedal Footswitch	1	2	x		x	x
607A	5338419	USB Footswitch FSU-1000	1	2	x		x	x
608	5172876-2	USB Wireless Card	1	2	x	x	x	x

Table 9-8 Accessories and Kits

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
609	5151259	UP-D897 Digital B/W Printer (USA)	1	2	x	x	x	x
610	5151261	UP-D897 Digital B/W Printer (EU)	1	2	x	x	x	x
611	5151262	UP-D897 Digital B/W Printer (CHN)	1	2	x	x	x	x
612	5151263	UP-D897 Digital B/W Printer (JPN)	1	2	x	x	x	x
613	5133107	UP-D23MD Digital Color Printer (US)	1	2	x	x	x	x
614	5133108	UP-D23MD Digital Color Printer (EU)	1	2	x	x	x	x
615	5133106	UP-D23MD Digital Color Printer (CN)	1	2	x	x	x	x
616	5133109	UP-D23MD Digital Color Printer (JP)	1	2	x	x	x	x
613A	5133107-2	UP-D25MD Digital Color Printer (US)	1	2	x	x	x	x
614A	5133108-2	UP-D25MD Digital Color Printer (EU)	1	2	x	x	x	x
615A	5133106-2	UP-D25MD Digital Color Printer (CN)	1	2	x	x	x	x
616A	5133109-2	UP-D25MD Digital Color Printer (JP)	1	2	x	x	x	x
617	5175689	HP470 Printer Kits (HP470+PIT) -US	1	2	x	x	x	x
618	5175988	HP470 Printer Kits (HP470+PIT) -EU	1	2	x	x	x	x
619	5175350	HP470 Printer Kits (HP470+PIT) -CN	1	2	x	x	x	x
620	5175546	HP470 Printer Kits (HP470+PIT) -JP	1	2	x	x	x	x
621	5175122	HP K550 PC Printer -US for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
621A	5175122-2	HP K5400 PC Printer -US	1	2	x	x	x	x
621B	5175122-3	HP K8600 PC Printer -US	1	2	x	x	x	x
622	5175833	HP K550 PC Printer -EU for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
622A	5175833-2	HP K5400 PC Printer -EU	1	2	x	x	x	x
622B	5175833-3	HP K8600 PC Printer -EU	1	2	x	x	x	x
623	5175554	HP K550 PC Printer -CN for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
623A	5175554-2	HP K5400 PC Printer -CN	1	2	x	x	x	x
623B	5175554-3	HP K8600 PC Printer -CN	1	2	x	x	x	x
624	5175898	HP K550 PC Printer-JP for LOGIQ e R4.x.x / Vivid e R4.x.x / LOGIQ i R4.x.x	1	2	x		x	x
624A	5175898-2	HP K5400 PC Printer-JP	1	2	x	x	x	x

Table 9-8 Accessories and Kits

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
624B	5175898-3	HP K8600 PC Printer-JP	1	2	x	x	x	x
625	5183418	Loop Connector service tool for channel diagnostic used for LOGIQ e R5.0.x / LOGIQ e R5.2.x/LOGIQ e R6.x.x / LOGIQ e Vet / Vivid e R5.x.x/ Vivid e R6.x.x/ LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	2	x	x	x	x
626	5146055	ECG USB Cable	1	2	x	x	x	x
627	5129487	ECG Module from Norav Isral ECG Module, not for applicable for Muslim countries and China	1	2	x	x	x	x
628	5146056	ECG Detachable Cable AHA	1	2	x	x	x	x
629	5146739	ECG Detachable Cable IEC	1	2	x	x	x	x
630	5149641	ECG Module with Chinese Label	1	2	x	x	x	x
631	5195563	ECG Module with SKD Label, only applicable for Muslim countries	1	2	x	x	x	x
632	5184951	USB Hub	1	2	x	x	x	x
632A	5184951-2	4 Ports HUB (USB 2.0)	1	2	x	x	x	x
633	5168040	USB Memory 512M	1	2	x	x	x	x
633A	5168040-2	USB Memory 1G	1	2	x	x	x	x
633B	5168040-3	USB Memory 2G	1	2	x	x	x	x
633C	5168040-4	USB Memory 4G	1	2	x	x	x	x
634	5181598	LOGO Kit for LOGIQ e R4.x.x / LOGIQ e R5.0.x / LOGIQ e R5.2.x/LOGIQ e R6.x.x	1	2	x			
	5234932	LOGO Kit for LOGIQ e Vet	1	2		x		
	5183684	LOGO Kit for Vivid e R4.x.x	1	2			x	
	5183684	LOGO Kit for Vivid e R5.x.x / Vivid e R6.x.x	1	2			x	
	5191678	LOGO Kit for LOGIQ i R4.x.x / LOGIQ i R5.x.x	1	2				x
635	5173797	USB Harddisk 40G	1	2	x		x	x
635A	5173797-2	USB Harddisk 80G	1	2	x		x	x
635B	5173797-3	USB Harddisk 250G	1	2	x		x	x
635C	5173797-4	USB Harddisk 500G	1	2	x		x	x
636	5322237	Barcode Reader 4600G for LOGIQ e R5.2.x/LOGIQ e R6.x.x	1	2	x			
637	5322752	Barcode Reader 3800G for LOGIQ e R5.2.x/LOGIQ e R6.x.x	1	2	x			
638	5322231	Barcode Reader Cable for Service for LOGIQ e R5.2.x/LOGIQ e R6.x.x	1	2	x			
639	5324784	3-meter Internet Cable for Service	1	2	x	x	x	x

Table 9-8 Accessories and Kits

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
640	5199293	Shoulder Bag	1	2	x	x	x	x
641	5196495	Clamp Filter for LOGIQ i R5.1.x	1	2				x
642	5268864	Peripheral Driver Patch CD Installation kit	1	2	x	x	x	x
643	5248284	Software Upgrade DVD for R5.1.0 for LOGIQ i	1	2				x
644	5264324	USB Wireless adapter WG111v3 Installation kit	1	2	x	x	x	x
644A	5264324-2	USB Wireless adapter WN111v2 Installation kit	1	2	x	x	x	x
645	5172876-3	NetGear USB Wireless Adapter WG111 V3	1	2	x	x	x	x
646	5324784	3m Lan Cable	1	2	x	x	x	x
647	5173474	System and Application software DVD for LOGIQ e (R4.0.0)	1	2	x			
	5173474-2	System and Application software DVD for LOGIQ e (R4.0.1)	1	2	x			
	5173474-3	System and Application software DVD for LOGIQ e (R4.0.2)	1	2	x			
	5173474-4	System and Application software DVD for LOGIQ e (R4.0.3)	1	2	x			
	5173474-5	System and Application software DVD for LOGIQ e (R4.0.4)	1	2	x			
	5173474-6	System and Application software DVD for LOGIQ e (R4.0.4)	1	2	x			
648	5235031	System and Application software DVD for LOGIQ e (R 5.0.0)	1	2	x			
	5235031-2	System and Application software DVD for LOGIQ e (R 5.0.1)	1	2	x			
	5235031-3	System and Application software DVD for LOGIQ e (R 5.0.1)	1	2	x			
649	5322236	System and Application software DVD for LOGIQ e (R 5.2.0)	1	2	x			
	5322457-4	System and Application software DVD for LOGIQ e (R 5.2.1)	1	2	x			
	5322457-6	System and Application software DVD for LOGIQ e (R 5.2.2)	1	2	x			
	5322457-7	System and Application software DVD for LOGIQ e (R 5.2.3)	1	2	x			
650	5396928-3	System and Application software DVD for LOGIQ e (R 6.0.1)	1	2	x			
	5396928-4	System and Application software DVD for LOGIQ e (R 6.0.2)	1	2	x			
	5396928-5	System and Application software DVD for LOGIQ e (R 6.0.3)	1	2	x			
	5396928-6	System and Application software DVD for LOGIQ e (R 6.0.4)	1	2	x			
655	5423626	System and Application software DVD for LOGIQ e (R 7.0.0)	1	2	x			
651	5248829	System and Application software DVD for LOGIQ e Vet (R 5.0.0)	1	2		x		
	5248829-2	System and Application software DVD for LOGIQ e Vet (R 5.0.1)	1	2		x		
	5248829-3	System and Application software DVD for LOGIQ e Vet (R 5.0.1)	1	2		x		

Table 9-8 Accessories and Kits

Item	Part Number	Part Name	Quantity	FRU	LOGIQ e	LOGIQ e Vet	Vivid e	LOGIQ i
	5248829-4	System and Application software DVD for LOGIQ e Vet (R 5.2.0)	1	2		x		
	5248829-5	System and Application software DVD for LOGIQ e Vet (R 6.0.3)	1	2		x		
652	5175298	System and Application software DVD for Vivid e (R4.0.0)					x	
	5175298-2	System and Application software DVD for Vivid e (R4.0.1)					x	
	5175298-3	System and Application software DVD for Vivid e (R4.0.2)					x	
	5175298-4	System and Application software DVD for Vivid e (R4.0.3)					x	
	5175298-5	System and Application software DVD for Vivid e (R4.0.4)					x	
	5175298-6	System and Application software DVD for Vivid e (R4.0.4)					x	
653	5248828	System and Application software DVD for Vivid e (R 5.0.0)					x	
	5248828-2	System and Application software DVD for Vivid e (R 5.0.1)					x	
	5248828-3	System and Application software DVD for Vivid e (R 5.0.1)					x	
	5248828-4	System and Application software DVD for Vivid e (R 5.2.0)					x	
	5248828-5	System and Application software DVD for Vivid e (R 5.2.1)					x	
	5248828-6	System and Application software DVD for Vivid e (R 6.0.0)					x	
654	5191713-3	System and Application software DVD for LOGIQ i (R4.1.1)						x
	5191713-6	System and Application software DVD for LOGIQ i (R5.1.0)						x
	5191713-7	System and Application software DVD for LOGIQ i (R5.1.1)						x

Section 9-12Manuals

Table 9-9 MANUALS for LOGIQ e R4.x.x

Item	Part Name	Part Number	Description	Quantity	FRU
	LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Service Manual	5370626 -100	Service Manual	1	N
System User Manuals					
	LOGIQ e R4.x.x User Manual, English	5118586-100	Basic User Manual	1	N
	LOGIQ e R4.x.x User Manual, French	5118586-101	Basic User Manual	1	N
	LOGIQ e R4.x.x User Manual, Spanish	5118586-106	Basic User Manual	1	N
	LOGIQ e R4.x.x User Manual, German	5118586-108	Basic User Manual	1	N
	LOGIQ e R4.x.x User Manual, Italian	5118586-111	Basic User Manual	1	N
	LOGIQ e R4.x.x User Manual, Portuguese	5118586-127	Basic User Manual	1	N
	LOGIQ e R4.x.x User Manual, Japanese	5118586-140	Basic User Manual	1	N
	LOGIQ e R4.x.x User Manual, Chinese	5118586-141	Basic User Manual	1	N
System Quick Start Guide					
	LOGIQ e R4.x.x Quick Start Guide, English	5130174 -100	Quick Start Guide	1	N
	LOGIQ e R4.x.x Quick Start Guide, French	5130174 -101	Quick Start Guide	1	N
	LOGIQ e R4.x.x Quick Start Guide, Spanish	5130174 -106	Quick Start Guide	1	N
	LOGIQ e R4.x.x Quick Start Guide, German	5130174 -108	Quick Start Guide	1	N
	LOGIQ e R4.x.x Quick Start Guide, Italian	5130174 -111	Quick Start Guide	1	N
	LOGIQ e R4.x.x Quick Start Guide, Portuguese	5130174 -127	Quick Start Guide	1	N
	LOGIQ e R4.x.x Quick Start Guide, Japanese	5130174 -140	Quick Start Guide	1	N
	LOGIQ e R4.x.x Quick Start Guide, Chinese	5130174 -141	Quick Start Guide	1	N

Table 9-10 MANUALS for LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x/ LOGIQ e Vet

Item	Part Name	Part Number	Description	Quantity	FRU
	LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Service Manual	5370626 -100	Service Manual	1	N
System User Manuals					
	LOGIQ e User Manual, English	5199656 -100	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e User Manual, French	5199656 -101	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e User Manual, Spanish	5199656 -106	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e User Manual, German	5199656 -108	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e User Manual, Italian	5199656 -111	Basic User Manual (for R5.0.x)	1	N

Table 9-10 MANUALS for LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x/ LOGIQ e Vet

Item	Part Name	Part Number	Description	Quantity	FRU
	LOGIQ e User Manual, Portuguese	5199656 -127	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e User Manual, Japanese	5199656 -140	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e User Manual, Chinese	5199656 -141	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e Vet User Manual English	5198506 -100	Basic User Manual (for R5.0.x/5.2.x)	1	N
	LOGIQ e Vet User Manual, French	5198506 -101	Basic User Manual (for R5.0.x/5.2.x)	1	N
	LOGIQ e Vet User Manual, Spanish	5198506 -106	Basic User Manual (for R5.0.x/5.2.x)	1	N
	LOGIQ e Vet User Manual, German	5198506 -108	Basic User Manual (for R5.0.x/5.2.x)	1	N
	LOGIQ e Vet User Manual, Italian	5198506 -111	Basic User Manual (for R5.0.x/5.2.x)	1	N
	LOGIQ e Vet User Manual, Portuguese	5198506 -127	Basic User Manual (for R5.0.x/5.2.x)	1	N
	LOGIQ e Vet User Manual, Japanese	5198506 -140	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e Vet User Manual, Chinese	5198506 -141	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e R5.0.x CKD User Manual, English	5268200-100	Basic User Manual (for R5.0.x)	1	N
	LOGIQ e User Manual, English	5314622 -100	Basic User Manual (for R5.2.x/R6.x.x)	1	N
	LOGIQ e User Manual, French	5314622 -101	Basic User Manual (for R5.2.x/R6.x.x)	1	N
	LOGIQ e User Manual, Spanish	5314622 -106	Basic User Manual (for R5.2.x/R6.x.x)	1	N
	LOGIQ e User Manual, German	5314622 -108	Basic User Manual (for R5.2.x/R6.x.x)	1	N
	LOGIQ e User Manual, Italian	5314622 -111	Basic User Manual (for R5.2.x/R6.x.x)	1	N
	LOGIQ e User Manual, Portuguese	5314622 -127	Basic User Manual (for R5.2.x/R6.x.x)	1	N
	LOGIQ e User Manual, Japanese	5314622 -140	Basic User Manual (for R5.2.x/R6.x.x)	1	N
	LOGIQ e User Manual, Chinese	5314622 -141	Basic User Manual (for R5.2.x/R6.x.x)	1	N
System Quick Start Guide					
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, English	5212024 -100	Quick Start Guide (for R5.0.x)	1	N
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, French	5212024 -101	Quick Start Guide (for R5.0.x)	1	N
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, Spanish	5212024 -106	Quick Start Guide (for R5.0.x)	1	N
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, German	5212024 -108	Quick Start Guide (for R5.0.x)	1	N
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, Italian	5212024 -111	Quick Start Guide (for R5.0.x)	1	N
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, Portuguese	5212024 -127	Quick Start Guide (for R5.0.x)	1	N

Table 9-10 MANUALS for LOGIQ e R5.0.x / LOGIQ e R5.2.x / LOGIQ e R6.x.x/ LOGIQ e Vet

Item	Part Name	Part Number	Description	Quantity	FRU
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, Japanese	5212024 -140	Quick Start Guide (for R5.0.x)	1	N
	LOGIQ e R5.0.x / LOGIQ e Vet Quick Start Guide, Chinese	5212024 -141	Quick Start Guide (for R5.0.x)	1	N
	LOGIQ e R5.2.x/R6.x.x Quick Start Guide	5314624-100	Quick Start Guide (for R5.2.x/R6.x.x)	1	N
	LOGIQ e Vet R5.2.x Quick Start Guide, English	5329881-100	Quick Start Guide (for R5.2.x)	1	N

Table 9-11 MANUALS for Vivid e R4.x.x

Item	Part Name	Part Number	Description	Quantity	FRU
	LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Service Manual	5370626 -100	Service Manual	1	N
System User Manuals					
	Vivid e R4.x.x User Manual, English	5165247-100	Basic User Manual	1	N
	Vivid e R4.x.x User Manual, French	5165247-101	Basic User Manual	1	N
	Vivid e R4.x.x User Manual, Spanish	5165247-106	Basic User Manual	1	N
	Vivid e R4.x.x User Manual, German	5165247-108	Basic User Manual	1	N
	Vivid e R4.x.x User Manual, Italian	5165247-111	Basic User Manual	1	N
	Vivid e R4.x.x User Manual, Portuguese	5165247-127	Basic User Manual	1	N
	Vivid e R4.x.x User Manual, Japanese	5165247-140	Basic User Manual	1	N
	Vivid e R4.x.x User Manual, Chinese	5165247-141	Basic User Manual	1	N
System Quick Start Guide					
	Vivid e R4.x.x Quick Start Guide, English	5175726 -100	Quick Start Guide	1	N
	Vivid e R4.x.x Quick Start Guide, French	5175726 -101	Quick Start Guide	1	N
	Vivid e R4.x.x Quick Start Guide, Spanish	5175726 -106	Quick Start Guide	1	N
	Vivid e R4.x.x Quick Start Guide, German	5175726 -108	Quick Start Guide	1	N
	Vivid e R4.x.x Quick Start Guide, Italian	5175726 -111	Quick Start Guide	1	N
	Vivid e R4.x.x Quick Start Guide, Portuguese	5175726 -127	Quick Start Guide	1	N
	Vivid e R4.x.x Quick Start Guide, Japanese	5175726 -140	Quick Start Guide	1	N
	Vivid e R4.x.x Quick Start Guide, Chinese	5175726 -141	Quick Start Guide	1	N

Table 9-12 MANUALS for Vivid e R5.x.x / Vivid e R6.x.x

Item	Part Name	Part Number	Description	Quantity	FRU
	LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Service Manual	5370626-100	Service Manual	1	N
System User Manuals					
	Vivid e R5.x.x/R6.x.x User Manual, English	5198874 -100	Basic User Manual	1	N
	Vivid e R5.x.x/R6.x.x User Manual, French	5198874 -101	Basic User Manual	1	N
	Vivid e R5.x.x/R6.x.x User Manual, Spanish	5198874 -106	Basic User Manual	1	N
	Vivid e R5.x.x/R6.x.x User Manual, German	5198874 -108	Basic User Manual	1	N
	Vivid e R5.x.x/R6.x.x User Manual, Italian	5198874 -111	Basic User Manual	1	N
	Vivid e R5.x.x/R6.x.x User Manual, Portuguese	5198874 -127	Basic User Manual	1	N
	Vivid e R5.x.x/R6.x.x User Manual, Japanese	5198874 -140	Basic User Manual	1	N
	Vivid e R5.x.x/R6.x.x User Manual, Chinese	5198874 -141	Basic User Manual	1	N
System Quick Start Guide					
	Vivid e R5.x.x/R6.x.x Quick Start Guide, English	5212811 -100	Quick Start Guide	1	N
	Vivid e R5.0.x Quick Start Guide, French	5212811 -101	Quick Start Guide	1	N
	Vivid e R5.0.x Quick Start Guide, Spanish	5212811 -106	Quick Start Guide	1	N
	Vivid e R5.0.x Quick Start Guide, German	5212811 -108	Quick Start Guide	1	N
	Vivid e R5.0.x Quick Start Guide, Italian	5212811 -111	Quick Start Guide	1	N
	Vivid e R5.0.x Quick Start Guide, Portuguese	5212811 -127	Quick Start Guide	1	N
	Vivid e R5.0.x Quick Start Guide, Japanese	5212811 -140	Quick Start Guide	1	N
	Vivid e R5.0.x Quick Start Guide, Chinese	5212811 -141	Quick Start Guide	1	N

Table 9-13 MANUALS for LOGIQ i R4.x.x / LOGIQ i R5.x.x

Item	Part Name	Part Number	Description	Quantity	FRU
Manuals					
	LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e Service Manual	5370626-100	Service Manual	1	N
System User Manuals					
	LOGIQ i R4.x.x User Manual, English	5179205-100	Basic User Manual	1	N
	LOGIQ i R4.x.x User Manual, French	5179205-101	Basic User Manual	1	N
	LOGIQ i R4.x.x User Manual, Spanish	5179205-106	Basic User Manual	1	N
	LOGIQ i R4.x.x User Manual, German	5179205-108	Basic User Manual	1	N
	LOGIQ i R4.x.x User Manual, Italian	5179205-111	Basic User Manual	1	N

Table 9-13 MANUALS for LOGIQ i R4.x.x / LOGIQ i R5.x.x

Item	Part Name	Part Number	Description	Quantity	FRU
	LOGIQ i R4.x.x User Manual, Portuguese	5179205-127	Basic User Manual	1	N
	LOGIQ i R4.x.x User Manual, Japanese	5179205-140	Basic User Manual	1	N
	LOGIQ i R4.x.x User Manual, Chinese	5179205-141	Basic User Manual	1	N
System User Manuals					
	LOGIQ i R5.x.x User Manual, English	5212229-100	Basic User Manual	1	N
	LOGIQ i R5.x.x User Manual, French	5212229-101	Basic User Manual	1	N
	LOGIQ i R5.x.x User Manual, Spanish	5212229-106	Basic User Manual	1	N
	LOGIQ i R5.x.x User Manual, German	5212229-108	Basic User Manual	1	N
	LOGIQ i R5.x.x User Manual, Italian	5212229-111	Basic User Manual	1	N
	LOGIQ i R5.x.x User Manual, Portuguese	5212229-127	Basic User Manual	1	N
	LOGIQ i R5.x.x User Manual, Chinese	5179205-141	Basic User Manual	1	N
System Quick Start Guide					
	LOGIQ i R4.x.x Quick Start Guide, English	5180949 -100	Quick Start Guide	1	N
	LOGIQ i R4.x.x Quick Start Guide, French	5180949 -101	Quick Start Guide	1	N
	LOGIQ i R4.x.x Quick Start Guide, Spanish	5180949 -106	Quick Start Guide	1	N
	LOGIQ i R4.x.x Quick Start Guide, German	5180949 -108	Quick Start Guide	1	N
	LOGIQ i R4.x.x Quick Start Guide, Italian	5180949 -111	Quick Start Guide	1	N
	LOGIQ i R4.x.x Quick Start Guide, Portuguese	5180949 -127	Quick Start Guide	1	N
	LOGIQ i R4.x.x Quick Start Guide, Japanese	5180949 -140	Quick Start Guide	1	N
	LOGIQ i R4.x.x Quick Start Guide, Chinese	5180949 -141	Quick Start Guide	1	N
System Quick Start Guide					
	LOGIQ i R5.x.x Quick Start Guide, English	5245368 -100	Quick Start Guide	1	N

Section 9-13Probe

Table 9-14 Probes for LOGIQ e, Vivid e and LOGIQ i

Item	Part Name	Part Number	Description	Quality	FRU	LOGIQ e R4.x.x	LOGIQ e R5.0.x	LOGIQ e R5.2.x	LOGIQ e R6.x.x	LOGIQ e R7.x.x	Vivid e R4.x.x	Vivid e R5.0.x	Vivid e R5.2.x	Vivid e R6.x.x	LOGIQ i R4.x.x	LOGIQ i R5.x.x
701	4C-RS	5131629	Probe (Center Frequency: 3.2MHz)	1	1	x	x	x	x		x	x	x	x	x	x
702	E8C-RS	2290777	Probe (Center Frequency: 6.5MHz)	1	1	x	x	x	x				x	x	x	x
703	8C-RS	2354971	Probe (Center Frequency: 6.5MHz)	1	1	x	x	x	x			x	x	x	x	x
704	i12L-RS	2377942	Probe (Center Frequency: 5.6MHz)	1	1	x	x	x	x		x	x	x	x	x	x
705	8L-RS	2376127	Probe (Center Frequency: 6.2MHz)	1	1	x	x	x	x		x	x	x	x	x	x
706	3S-RS	2355686	Probe (Center Frequency: 2.0MHz)	1	1	x	x	x	x		x	x	x	x	x	x
707	12L-RS	5154514	Probe (Center Frequency: 7.5MHz)	1	1	x	x	x	x				x	x	x	x
708	i739-RS	2404995	Probe (Center Frequency: 7.4MHz)	1	1		x	x	x							x
709	T739-RS	2404999	Probe (Center Frequency: 6.5MHz)	1	1		x	x	x							x
710	P2D	KE100003	Probe (Center Frequency:2.0MHz)	1	1							x	x	x		x
711	9L-RS	5213143	Probe (Center Frequency: 7.5MHz)	1	1		x	x	x			x	x	x		x
712	6S-RS	47236867	Probe (Center Frequency: 4.8MHz)	1	1				x				x	x		x
713	16L-RS	5317271	Probe (Center Frequency: 12.0MHz)	1	1			x	x							
714	6Tc-RS	KN100104	Probe (Center Frequency: 4.8MHz)						x					x		
715	L8-18i-RS	5397810	Probe (Center Frequency: 9.5MHz)							x						

NOTE: 16L-RS is not available in China.

Section 9-13 Probe (cont'd)

Table 9-15 Probes for LOGIQ e Vet

Item	Part Name	Part Number	Description	Quantity	FRU	LOGIQ e Vet R5.0.x	LOGIQ e Vet R5.2.x	LOGIQ e Vet R5.2.x
750	4C-RS Vet	5198378	Probe (Center Frequency: 3.2MHz)	1	1	x	x	x
751	E8C-RS Vet	5134643	Probe (Center Frequency: 6.5MHz)	1	1	x	x	x
752	8C-RS Vet	5134642	Probe (Center Frequency: 6.5MHz)	1	1	x	x	x
753	i12L-RS Vet	5134645	Probe (Center Frequency: 5.6MHz)	1	1	x	x	x
754	8L-RS Vet	2376127	Probe (Center Frequency: 6.2MHz)	1	1	x	x	x
755	3S-RS Vet	5134647	Probe (Center Frequency: 2.0MHz)	1	1	x	x	x
756	12L-RS Vet	5212304	Probe (Center Frequency: 7.5MHz)	1	1	x	x	x
757	9L-RS Vet	5220453	Probe (Center Frequency: 7.5MHz)	1	1	x	x	x
758	i739-RS-LC	5136420	Probe (Center Frequency: 6.4MHz)	1	1		x	x
759	6S Vet-RS Vet	5198571	Probe (Center Frequency:4.8MHz)	1	1		x	x
760	6Tc-RS Vet	5430790	Probe (Center Frequency: 4.8 MHz)	1	1		x	x

Chapter 10
Care & Maintenance

Section 10-1
Overview

10-1-1 Periodic Maintenance Inspections

It has been determined by engineering that your LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e system does not have any high wear components that fail with use, therefore no Periodic Maintenance Inspections are mandatory. Some Customers Quality Assurance Programs may require additional tasks and or inspections at a different frequency than listed in this manual.

10-1-2 Purpose of Chapter 10

This chapter describes **Care & Maintenance** on the scanner and peripherals. These procedures are intended to **maintain the quality** of the ultrasound **systems performance**. Read this chapter completely and familiarize yourself with the procedures before performing a task.

Table 10-1 Contents in Chapter 10

Section	Description	Page Number
10-1	Overview	10-1
10-2	Why do Maintenance	10-2
10-3	Maintenance Task Schedule	10-2
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10-5	System Maintenance	10-5
10-6	Electrical Safety Tests	10-11
10-7	When There's Too Much Leakage Current...	10-18

CAUTION **Practice good ESD prevention. Wear an anti–static strap when handling electronic parts and even when disconnecting/connecting cables.**

DANGER **BE SURE TO DISCONNECT THE SYSTEM POWER PLUG BEFORE YOU REMOVE ANY PARTS. BE CAUTIOUS WHENEVER POWER IS STILL ON AND COVERS ARE REMOVED.**

CAUTION **Do not pull out or insert circuit boards while power is ON.**

CAUTION **Do not operate this unit unless all board covers and frame panels are securely in place. System performance and cooling require this.**

Section 10-2
Why do Maintenance

10-2-1 Keeping Records

It is good business practice that ultrasound facilities maintain records of periodic and corrective maintenance. The Ultrasound Periodic Maintenance Inspection Certificate provides the customer with documentation that the ultrasound scanner is maintained on a periodic basis.

A copy of the Ultrasound Periodic Maintenance Inspection Certificate should be kept in the same room or near the scanner.

10-2-2 Quality Assurance

In order to gain accreditation from organizations such as the American College of Radiology (USA), it is the customer's responsibility to have a quality assurance program in place for each scanner. The program must be directed by a medical physicists, the supervising radiologist/physician or appropriate designee.

Routine quality control testing must occur regularly. The same tests are performed during each period so that changes can be monitored over time and effective corrective action can be taken.

Testing results, corrective action and the effects of corrective action must be documented and maintained on the site.

Your GE service representative can help you with establishing, performing and maintaining records for a quality assurance program. Please contact us for coverage information and/or price for service.

Section 10-3
Maintenance Task Schedule

10-3-1 How often should care & maintenance tasks be performed?

The Care & Maintenance Task Schedule (provided on page 10-3) specifies how often your LOGIQ e/ LOGIQ e Vet/LOGIQ i/Vivid e should be serviced and outlines items requiring special attention.

NOTE: It is the customer's responsibility to ensure the LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e care & maintenance is performed as scheduled in order to retain its high level of safety, dependability and performance.

Your GE Service Representative has an in-depth knowlegde of your LOGIQ e/LOGIQ e Vet/LOGIQ i/ Vivid e ultrasound scanning system and can best provide competent, efficient service. Please contact us for coverage information and/or price for service.

The service procedures and recommended intervals shown in the Care & Maintenance Task Schedule assumes that you use your LOGIQ e/LOGIQ e Vet/LOGIQ i/Vivid e for an average patient load (10-12 per day) and use it as a primary mobile unit which is transported between diagnostic facilities.

NOTE: If conditions exist which exceed typical usage and patient load, then it is recommended to increase the maintenance frequencies.

Table 10-2 Customer Care Schedule

Service at Indicated Time	Daily	Weekly	Monthly	Per Facilities QA Program	Notes
Clean Probes	•*				* or before each use
Inspect AC Mains Cable			•		Mobile Unit Check Weekly
Inspect Cables and Connectors			•		
Clean Console			•		
Clean LCD			•		
Console Leakage Current Checks				**See Note**	**Twice Annually**
Peripheral Leakage Current Checks				**See Note**	**Twice Annually**
Surface Probe Leakage Current Checks				**See Note**	**Twice Annually**
Endocavity Probe Leakage Current Checks				**See Note**	**Quarterly Annually**
Measurement Accuracy Checks				**See Note**	**Twice Annually**

NOTE: May require specialized equipment to complete

NOTE: PMs are not mandatory, the table above is for reference only.

Section 10-4
Tools Required

10-4-1 Special Tools, Supplies and Equipment

10-4-1-1 Specific Requirements for Care & Maintenance

Table 10-3 Overview of Requirements for Care & Maintenance

Tool	Part Number	Comments
Digital Volt Meter (DVM)		
Anti Static Kit	46–194427P231 46–194427P279 46–194427P369 46–194427P373 46–194427P370	Kit includes anti–static mat, wrist strap and cables for 200 to 240 V system 3M #2204 Large adjustable wrist strap 3M #2214 Small adjustable wrist strap 3M #3051 conductive ground cord
Anti Static Vacuum Cleaner	46–194427P278 46–194427P279	120V 230V
Safety Analyzer	46–285652G1	The satety Analyzer tool should be calibrated abd compliant with AAMI/ESI 1993 or IEC 60601 or AS/NZS 3551.
QIQ Phantom	E8370RB	RMI Grayscale Target Model 403GS
B/W Printer Cleaning Sheet		See printer user manual for requirements
Color Printer Cleaning Sheet		See printer user manual for requirements
Disposable Gloves		

Section 10-5
System Maintenance

10-5-1 Preliminary Checks

The preliminary checks take about 15 minutes to perform. Refer to the system user documentation whenever necessary.

Table 10-4 System Checks

Step	Item	Description
1	Ask & Listen	Ask the customer if they have any problems or questions about the equipment.
2	Paperwork	Fill in the top of the Ultrasound Inspection Certificate (see page 19). Note all probes and system options.
3	Power up	With AC input. Turn the system power on and verify that all fans and peripherals turn on. Watch the displays during power up to verify that no warning or error messages are displayed. Check the Battery recharging. Without AC input, use internal battery.
4	Probes	Verify that the system properly recognizes all probes.
5	Displays	Verify proper display on the LCD.
6	Presets	Backup all customer presets on an DVD-RW.

10-5-2 Functional Checks (See Also Chapter 4)

The functional checks take about 60 minutes to perform. Refer to the system user documentation whenever necessary.

10-5-2-1 System Checks

Table 10-5 System Functional Checks

÷	Step	Description
	B-Mode	Verify basic B-Mode (2D) operation. Check the basic system controls that affect this mode of operation.
	CF-Mode	Verify basic CF-Mode (Color Flow Mode) operation. Check the basic system controls that affect this mode of operation.
	Doppler Modes	Verify basic Doppler operation (PW if available). Check the basic system controls that affect this mode of operation.
	M-Mode	Verify basic M-Mode operation. Check the basic system controls that affect this mode of operation.
	*Applicable Software Options	Verify the basic operation of all optional modes such as Multi-Image, 3D, Harmonics, Cine,... etc. Check the basic system controls that affect each options operation.
	Xmit/Recv Elements	Use the Visual Channel Utility on the loop connect to verify that all system xmit/recv channels are functional.
	Keyboard Test	Perform the Keyboard Test Procedure to verify that all keyboard controls are OK.
	LCD	Verify basic LCD display functions. Refer to Chapter 3 of the User Manual.
	Software Menu check	Verify Software Menu display functions. Refer to Chapter 3 of the User Manual.
	Measurements	In measurement mode, make distance measurement, get result in result window. Verify the distance by graduate rule. Distance Accuracy should be within ±5%. (Name result from result window Result A, result from graduate rule Result B; Distance Accuracy= (Result B-Result A)/Result A)

*NOTE: * Some software may be considered standard depending upon system model configuration.*

10-5-2-2 Peripheral/Option Checks

If any peripherals or options are not part of the system configuration, the check can be omitted. Refer to the User Manual for a list of approved peripherals/options.

Table 10-6 GE Approved Peripheral/Hardware Option Functional Checks

Step	Item	Description
1	B/W Printer	Verify hardcopy output of the B/W video page printer. Clean heads and covers if necessary.
2	Color Printer	Verify hardcopy output of the Color video page printer. Clean heads and covers if necessary.
3	DICOM	Verify that DICOM is functioning properly. Send an image to a DICOM device.
4	Footswitch	Verify that the footswitch is functioning as programed. Clean as necessary.
5	ECG	Verify basic operation with customer.
6	DVD	Verify that the DVD is functioning properly. Clean heads and covers if necessary.

10-5-3 Input Power

10-5-3-1 AC/DC Adapter Inspection

Table 10-7 AC/DC Adapter Inspection

Step	Item	Description
1	Unplug Cord	Disconnect the mains cable from the wall and system.
2	Inspect	Inspect it and its connectors for damage of any kinds.
3	Verify	Verify that the LINE wires are properly attached to the terminals, and that no strands may cause a short circuit.

10-5-4 Cleaning

10-5-4-1 General Cleaning

Table 10-8 General Cleaning

Step	Item	Description
1	Console	Remove the battery. Use a fluid detergent in warm water on a soft, damp cloth to carefully wipe the entire system. Be careful not to get the cloth too wet so that moisture does not enter the console.
2	Probe Holder	Clean probe holders. (they may need to be soaked to remove excess gel).
3	LCD	Use a soft, non-abrasive folder cloth. Gently wipe the LCD face. DO NOT use a glass cleaner that has a hydrocarbon base (such as Benzene, Methy Alcohol or Methy Ethyl Ketone) on LCD with the filter (anti-glare shield).

10-5-5 Physical Inspection

Table 10-9 Physical Checks

Step	Item	Description
1	Labeling	Verify that all system labeling is present and in readable condition. Refer to User Manual,..... for details.
2	Scratches & Dents	Inspect the console for dents, scratches or cracks.
3	Control Panel	Inspect keyboard and control panel. Note any damaged or missing items.
4	Cables & Connectors	Check all internal cable harnesses and connectors for wear and secure connector seating. Pay special attention to footswitch assembly and probe strain or bend reliefs.
5	Shielding & Covers	Check to ensure that all EMI shielding, internal covers, air flow panels and screws are in place. Missing covers and hardware could cause EMI/RFI problems while scanning.
6	External I/O	Check all connectors for damage.
7	Op Panel Lights	Check for proper operation of all operator panel and Freeze Key light.

10-5-6 Optional Diagnostic Checks

Optionally you can access the diagnostic software as described in Chapter 5 or 7. View the error logs and run desired diagnostics.

10-5-6-1 View the Logs

1.) Review the system error log for any problems.

2.) Check the temperature log to see if there are any trends that could cause problems in the future.

3.) Check the Configuration Log; update if needed.

10-5-7 Probe Maintenance

10-5-7-1 Probe Related Checks

Table 10-10 Probe Related Checks

Step	Item	Description
1	Probe Holder	Clean probe holders (they may need to be soaked to remove excess gel).
2	Probes	Thoroughly check the system probe connectors and remove dust from inside the connector sockets if necessary. Visually check for bent, damaged or missing pins

10-5-7-2 Basic Probe Care

The system user manuals and various probe handling cards provide a complete description of probe care, maintenance, cleaning and disinfection. Ensure that you are completely familiar with the proper care of GE probes.

Ultrasound probes can be easily damaged by improper handling. See the User Manual and probe care cards for more details. Failure to follow these precautions can result in serious injury and equipment damage. Failure to properly handle or maintain a probe may also void its warranty.

Any evidence of wear indicates the probe cannot be used.

Do a visual check of the probe pins and system sockets before plugging in a probe.

10-5-7-3 Basic Probe Cleaning

Refer to the User's Manual for details on probe cleaning.

NOTE: To help protect yourself from blood borne diseases, wear approved disposable gloves. These are made of nitrile derived from vegetable starch to prevent allergic latex reactions.

NOTE: Failure to follow the prescribed cleaning or disinfection procedures will void the probe's warranty. DO NOT soak or wipe the lens with any product not listed in the User Manual. Doing so could result in irreparable damage to the probe. Follow care instructions that came with the probe.

NOTE: Disinfect a defective probe before you return it. Be sure to tag the probe as being disinfected.

10-5-8 Battery Performance Maintenance

Battery replacement every three years is recommended.

It is recommended to do battery performance maintenance one time per year.

Please follow the flow chart below to carry out battery performance maintenance.

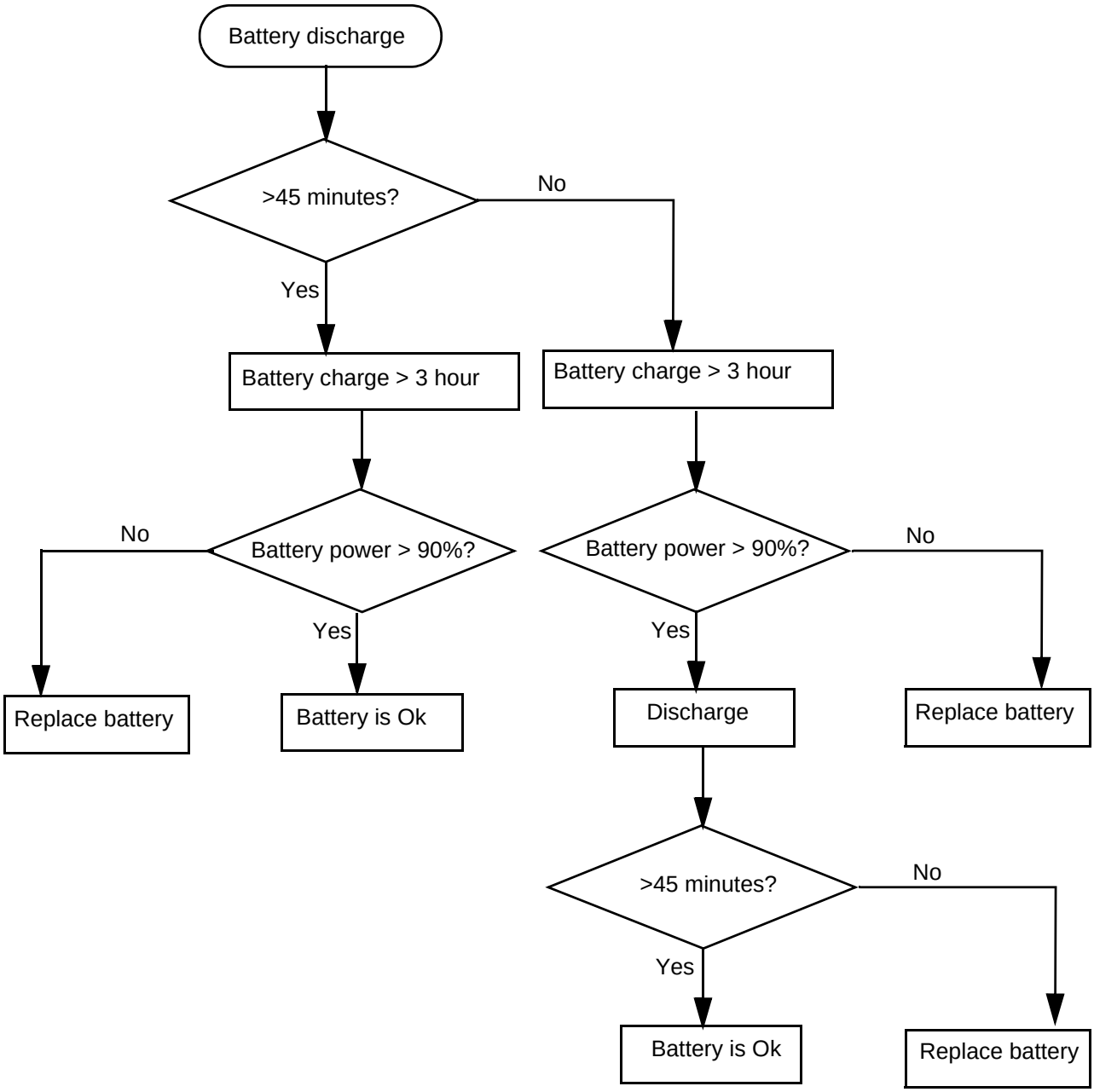

Figure 10-1 Flow chart of Battery Performance Maintenance

NOTE: Disconnect all probes when discharge battery.

NOTE: Discharge the battery to let the system automatically shut down.

Section 10-6
Electrical Safety Tests

10-6-1 Safety Test Overview

The electrical safety tests in this section are based on and conform to IEC 60601-1 Medical Equipment Safety Standards. They are intended for the electrical safety evaluation of cord-connected, electrically operated, patient care equipment. If additional information is needed, refer to the IEC 60601-1 documents.

⚠ **WARNING** ***THE USER MUST ENSURE THAT THE SAFETY INSPECTIONS ARE PERFORMED AT LEAST EVERY 6 MONTHS ACCORDING TO THE REQUIREMENTS OF THE PATIENT SAFETY STANDARD IEC-EN 60601-1. ONLY TRAINED PERSONS ARE ALLOWED TO PERFORM THE SAFETY INSPECTIONS MENTIONED ABOVE.***

⚠ **CAUTION** **To avoid electrical shock, the unit under test must not be connected to other electrical equipment. The unit under test must not be contacted by users or patients while performing these tests.**

⚠ **CAUTION** **Possible risk of infection. Do not handle soiled or contaminated probes and other components that have been in patient contact. Follow appropriate cleaning and disinfecting procedures before handling the equipment.**

Test the system, peripherals and probes for leakage current. Excessive leakage current can cause injury or death in sensitive patients. High leakage current can also indicate degradation of insulation and a potential for electrical failure. Do not use probes or equipment having excessive leakage current.

To minimize the risk that a probe may shock someone the customer should:

- Not use a probe that is cracked or damaged in any way
- Check probe leakage current:
    * Based on your facilities QA program for surface probes
    * Based on your facilities QA program for endocavitary probes
    * whenever probe damage is suspected

10-6-2 GEMS Leakage Current Limits

The following limits are summarized for IEC 60601-1 Medical Equipment Safety Standards. These limits are GEMS standards and in some cases are lower than the above standards listed.

Table 10-11 Chassis Leakage Current Limits—Accessible Metal Surfaces

Country	Normal Condition	Open Ground	Reverse Polarity	Open Neutral
All (Except USA & Canada)	0.1 mA	0.5 mA	0.5 mA	0.5 mA
USA & Canada	0.1 mA	0.3 mA	0.3 mA	0.3 mA

Table 10-12 Type BF Applied Part Leakage Current Limits - Probes surface

Country	Normal Condition	Open Ground	Reverse Polarity	Open Neutral	*Mains Applied
All	0.1 mA	0.5 mA	0.5 mA	0.5 mA	5.0 mA

Table 10-13 Type CF Applied Part Leakage Current Limits - ECG Connections

Country	Normal Condition	Open Ground	Reverse Polarity	Open Neutral	*Mains Applied
All	0.01 mA	0.05 mA	0.05 mA	0.05 mA	0.05 mA

*NOTE: *Mains Applied refers to the sink leakage test where mains (supply) voltage is applied to the part to determine the amount of current that will pass (or sink) to ground if a patient contacted mains voltage.*

The following tests are performed at the factory and should be performed at the site. These tests are: chassis leakage current, and probe leakage current. All measurements are made with an electrical safety analyzer which should be calibrated and compliant with AAMI/ESI 1993 or IEC 60601 or AS/NZS 3551.

10-6-3 Outlet Test - Wiring Arrangement

Test all outlets in the area for proper grounding and wiring arrangement by plugging in the neon outlet tester and noting the combination of lights that are illuminated. Any problems found should be reported to the hospital immediately and the receptacle should not be used.

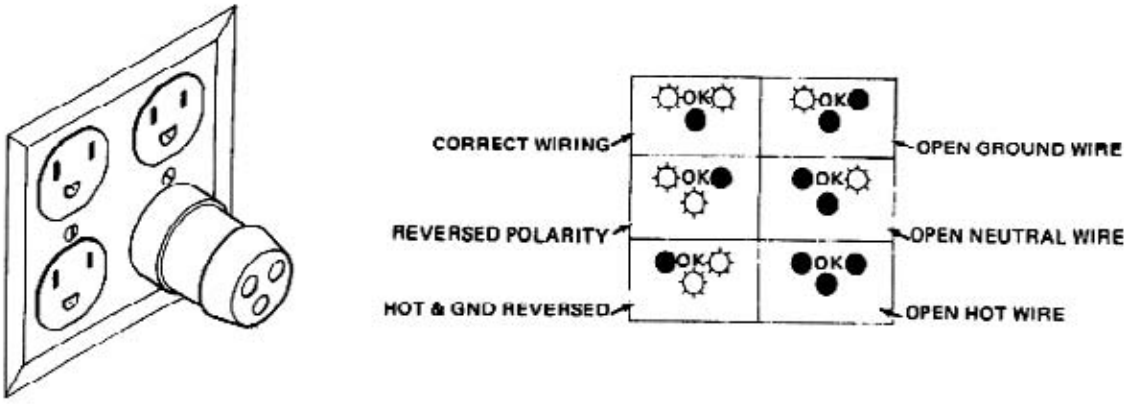

Figure 10-2 Typical Alternate Outlet Tester

NOTE: No outlet tester can detect the condition where the Neutral (grounded supply) conductor and the Grounding (protective earth) conductor are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

10-6-4 Chassis Leakage Current Test

10-6-4-1 Definition

This test measures the current that would flow in a grounded person who touched accessible metal parts of the bedside station if the ground wire should break. The test verifies the isolation of the power line from the chassis. The meter is connected from accessible metal parts of the case to ground. Measurements should be made with the unit On and Off, with the power line polarity Normal and Reversed. Record the highest reading.

CAUTION **Electric Shock Hazard. When the meter's ground switch is OPEN, don't touch the unit!**

CAUTION **Equipment damage possibility. Never switch the Polarity and the status of Neutral when the unit is powered ON. Be sure to turn the unit power OFF before switching them using the POLARITY switch and/or the NEUTRAL switch. Otherwise, the unit may be damaged.**

10-6-4-2 Generic Procedure

The test verifies the isolation of the power line from the chassis. The testing meter is connected from accessible metal parts of the case to ground. Measurements should be made with the unit ON and OFF, with the power line polarity Normal and Reversed. Record the highest reading of current.

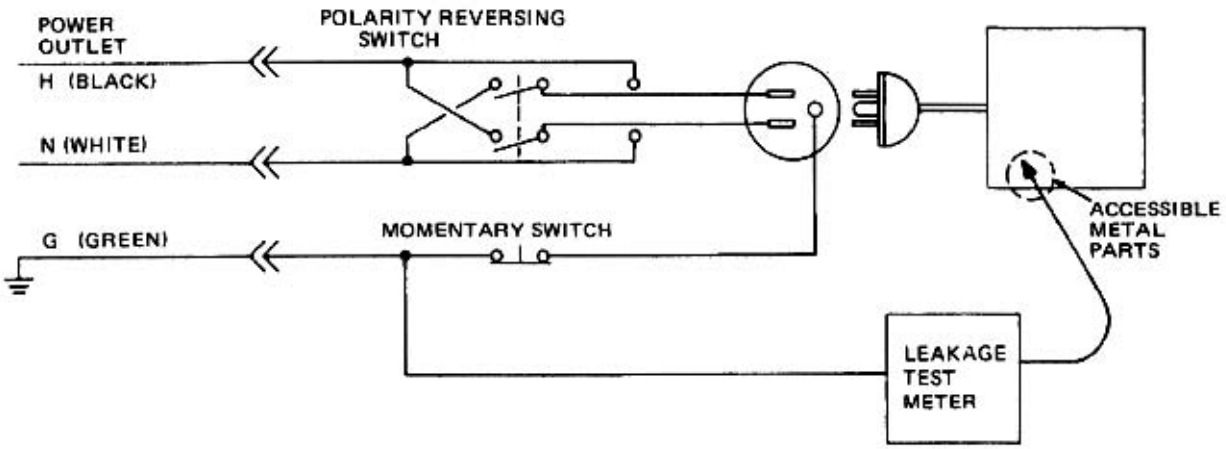

Figure 10-3 Set Up for Chassis Source Leakage Current, IEC 601-1 Clause 19 - Continuos Leakage Currents and Patient, Auxiliary Currents

When using the Microguard or a similar test instrument, its power plug may be inserted into the wall outlet and the equipment under test is plugged into the receptacle on the panel of the meter. This places the meter in the grounding conductor and the current flowing from the case to ground will be indicated in any of the current ranges. The maximum allowable limit for chassis source leakage is shown in Table 10-11.

10-6-4-3 Data Sheet for enclosure Source Leakage Current

The test passes when all readings measure less than the value shown in Table 10-11. Record all data on the PM Inspection Certificate.

Table 10-14 Typical Data Sheet for enclosure Source Leakage Current

Unit Power	Tester Polarity Switch	Tester Neutral or Ground Switch	Test 1 Speaker Cover	Test 2 Real Panel Metal Parts	Optional Test 3	Optional Test 4
Enter Name of tested peripheral here:						
ON	NORM	OPEN				
ON	NORM	CLOSED				
ON	REV	OPEN				
ON	REV	CLOSED				
OFF	NORM	OPEN				
OFF	NORM	CLOSED				
OFF	REV	OPEN				
OFF	REV	CLOSED				

10-6-5 Probe Leakage Current Test

10-6-5-1 Definition

This test measures the current that would flow to ground from any of the probes through a patient who is being scanned and becomes grounded by touching some other grounded surface.

10-6-5-2 Generic Procedure

Measurements should be made with the ground open and closed, with power line polarity normal and reversed, and with the unit Off and On. For each combination, the probe must be active to find the worst case condition.

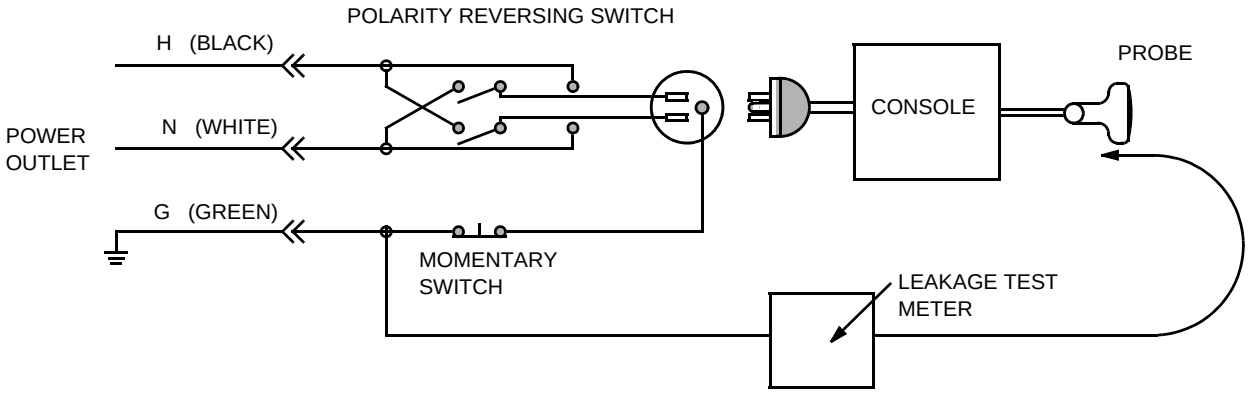

Figure 10-4 Set Up for Probe Leakage Current

NOTE: Each probe will have some amount of leakage current, dependent on its design. Small variations in probe leakage currents are normal from probe to probe. Other variations will result from differences in line voltage and test lead placement.

10-6-5-3 No Meter Probe Adapter Procedure

Follow the Safety Analyzer tool instruction to test each transducer for leakage current.

The electrical Safety Analyzer tool should be calibrated and compliant with AAM/ESI 1993 or IEC 60601 or AS/NZS 3551.

10-6-5-4 Data Sheet for Transducer Source Leakage Current

The test passes when all readings measure less than the values shown in Table 10-11. Record all data on the PM Inspection Certificate.

CAUTION **Equipment damage possibility. Never switch the Polarity and the status of Neutral when the unit is powered ON. Be sure to turn the unit power OFF before switching them using the POLARITY switch and/or the NEUTRAL switch. Otherwise, the unit may be damaged**

.

Table 10-15 Typical Data Sheet For Transducer Source Leakage Current

Transducer Tested:			
Unit Power	**Tester Power Polarity Switch**	**Tester GROUND or NUETRAL Switch**	**Measurement**
ON	NORM	OPEN	
ON	NORM	CLOSED	
ON	REV	OPEN	
ON	REV	CLOSED	
OFF	NORM	OPEN	
OFF	NORM	CLOSED	
OFF	REV	OPEN	
OFF	REV	CLOSED	

Section 10-7
When There's Too Much Leakage Current...

AC/DC FAILS

Check any broken of the AC/DC adapter and its cable. Replace a new one if any portion defective.

ENCLOSURE FAILS

Check any broken of the enclosure. Replace any defective part.

Inspect wiring for bad crimps, poor connections, or damage.

Test the wall outlet; verify it is grounded and is free of other wiring abnormalities. Notify the user or owner to correct any deviations. As a work around, check the other outlets to see if they could be used instead.

NOTE: No outlet tester can detect the condition where the white neutral wire and the green grounding wire are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

PROBE FAILS

Change another probe to confirm if the fail is caused by console.

NOTE: Each probe will have some amount of leakage, dependent on its design. Small variations in probe leakage currents are normal from probe to probe. Other variations will result from differences in line voltage and test lead placement. The maximum allowable leakage current for body surface contact probe differs from inter-cavity probe. Be sure to enter the correct probe type in the appropriate space on the check list.

If excessive leakage current is slot dependent, inspect the system connector for bent pins, poor connections, and ground continuity.

If the problem remains with the probe, replace the probe.

PERIPHERAL FAILS

Inspect wiring for bad crimps, poor connections, or damage.

STILL FAILS

If all else fails, begin isolation by removing the probes, external peripherals, then the on board ones, one at a time while monitoring the leakage current measurement.

NEW UNIT

If the leakage current measurement tests fail on a new unit and if situation can not be corrected, submit a Safety Failure Report to document the system problem. Remove unit from operation.

ULTRASOUND INSPECTION CERTIFICATE

Customer Name:		System ID:	Dispatch Number / Date Performed:	Warranty/Contract/HBS
System Type		Model Number:	Serial Number:	Manufacture Date:
Probe 1:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 2:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 3:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 4:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 5:	Frequency:	Scan Format*:	Model Number:	Serial Number:

* Scan Format: Phased Array, Linear Array, Curved Array, Mechanical Array or Other

FUNCTIONAL CHECKS

Functional Check (if applicable)	OK? or N/A
B-Mode Function	
Doppler Modes Function	
CF-Mode Function	
M-Mode Function	
Applicable Software Options	
Applicable Hardware Options	
Control Panel	
LCD	
Measurement Accuracy	
GE Approved Peripherals	

PHYSICAL INSPECTION AND CLEANING

Physical Inspection and Cleaning (if applicable)	Inspect	Clean
Console		
LCD		
External I/O		
Cables and Connectors		
GE Approved Peripherals (DVD-RW, Printer)		
Labeling (see User Manual for Labeling)		

COMMENTS:

_____

_____

_____

_____

ELECTRICAL SAFETY

Electrical Test Performed	Max Value Allowed	Value Measured	OK?	Comments
Outlet (correct ground &wiring config.)				
Type BF Applied Part Leakage Current Limits- Probe				
enclosure Source Leakage Current - Chassis Leakage Current Limits				
Peripheral 1 Leakage Current				
Peripheral 2 Leakage Current				

PROBES

Probe Number (from previous page)	Max Value Allowed	Max Value Measured	OK?	Comments
Probe 1:				
Probe 2:				
Probe 3:				

Final Check. All system covers are in place. System scans with all probes as expected.

Accepted by: _____

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